

Cancer Mortality among American Indians and Alaska Natives: Regional Differences, 1994 - 1998

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Cancer Mortality among American Indians and Alaska Natives: Regional Differences, 1994-1998

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2003 "Weaving a Basket of Hope" conference.



Attendees at the second American Indian-Alaska Native Cancer Survivors Celebration with thanks to the Unbroken Circle who spearheaded the effort.

This work is dedicated to American Indian and Alaska Native cancer survivors, their families and friends and to those working to decrease the cancer burden in Native American communities.

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Purpose and Description of Cancer Mortality: Indian Health Regional Differences, 1994-1998

This monograph delineates cancer mortality rates among American Indians and Alaska Natives (AI/ANs) within the different regions served by the Indian Health Service (IHS). The table and charts depict broader geographic regions than in previous IHS cancer mortality monographs (1,2) that provided cancer mortality data for the 12 IHS administrative Areas (IHS Area). In this monograph, we present the estimated IHS service population for each region and the cancer mortality rates from 1994 to 1998 for the principal anatomic sites. Comparisons are made to the general U.S. population for the same time period. The intention of this publication is to provide detailed information about the impact of cancer among Native American people, with a focus on the regional variability of cancer incidence for this population.

Overview of the Indian Health Service Program

The Department of Health and Human Service (DHHS), primarily through the Indian Health Service (IHS) of the U.S. Public Health Service (PHS), is responsible for providing Federal health services to American Indians and Alaska Natives. Federal Indian health services are based on laws that Congress had passed pursuant to its authority to regulate commerce with the Indian Nations as explicitly specified in the Constitution and in other pertinent authorities. The Indian Health program became a primary responsibility of the PHS under P.L. 83-568, the Transfer Act, on August 5, 1954. This Act provides that all functions, responsibilities, authorities, and duties related to the maintenance and operation of the hospital and health facilities for Indians, and the conservation of Indian health, shall be administered by the Surgeon General of the United States.

The goal of the Indian Health Service is to elevate the health status of American Indians and Alaska Natives to the highest possible level. Its mission is to ensure equity, availability, and accessibility of a comprehensive, high-quality health care delivery system that includes maximum participation by American Indians and Alaska Natives in defining their health needs, setting priorities for their local areas, and managing and controlling their health care program. The IHS also acts as the principal federal health advocate for Indian people by assuring they have knowledge of and access to all federal, state, and local health programs to which they are entitled. It is the responsibility of the IHS to collaborate with these programs and make them aware of the entitlements of Indian people.

The IHS has carried out its responsibility by developing and operating a health service delivery system that provides a broad spectrum of preventive, curative, rehabilitative, and environmental services. This system integrates health services delivered directly by IHS facility staff with services purchased by IHS through contractual arrangements, taking into account other health resources to which American Indians and Alaska Natives have access. Tribes are also actively involved in health program implementation.

An example of two laws enacted to improve the health status of American Indians and Alaska Natives are described here. The 1975 Indian Self-Determination Act, P.L. 93-638 as amended, builds upon IHS programs in Native American communities and provides funding for improvement of tribal capability to contract under the Act. The 1976 Indian Health Care Improvement Act, P.L. 94-437 as amended, was intended to elevate the health status of American Indians and Alaska Natives to a level equal to that of the general U.S. population by authorizing higher resource levels in the IHS budget. Appropriated resources were used to expand health services, build and renovate medical facilities, and set up the construction of safe drinking water and sanitary disposal facilities. This law also established programs designed to increase the number of Native American health professionals and to improve health care access for Native American people living in urban areas.

Under the Indian Self-Determination Act, tribes can choose to continue to receive health services provided directly by the IHS or they can opt to take control of their own health care services by managing the IHS funding directly. They can also selectively manage certain

components of their health services and leave others to the IHS. Currently, approximately half of the IHS budget is transferred directly to tribes under self-governance arrangements, and more tribes are expected to participate in such arrangements in the future. As these tribes move to self-governance for health services, they are going to rely increasingly on regional health profiles to guide them in strategic planning for optimal use of their resources.

Indian Health Service Structure

The IHS health services delivery system is managed through local administrative units. A service unit is the basic health organization for a geographic area served by the IHS, just as a county or city health department is the basic health organization in a state health department. These are defined areas, usually centered around a single federal reservation in the continental United States, or a population concentration in Alaska. A few service units cover a number of small reservations; some large reservations are divided into a number of service units. The service units are grouped into 12 larger cultural-demographic management jurisdictions that are administered by IHS units called Area Offices. These 12 jurisdictions are:

Aberdeen	Bemidji	Nashville	Phoenix
Alaska	Billings	Navajo	Portland
Albuquerque	California	Oklahoma	Tucson

As of October 1, 1998, the Area Offices consisted of 151 service units. Of the 151 service units, 85 were operated by tribes. The IHS operated 37 hospitals, 59 health centers, 4 school health centers, and 44 health stations. Tribes operated 12 hospitals, 155 health centers, 3 school health centers, 76 health stations, and 160 Alaska village clinics.

Cancer Mortality Among American Indians and Alaska Natives in the United States: Regional Differences in Indian Health, 1994-1998

INTRODUCTION

The Indian Health Service has strived to improve the health of American Indians and Alaska Natives (AI/ANs) in the United States for nearly 50 years. The results have been marked decreases in deaths due to infectious diseases and in infant and pregnancy-related mortality. Life expectancy at birth for Native Americans throughout the United States also has risen dramatically, from 51.0 years in 1940 to 71.1 years for the period 1994-96; this is 5.4 years less than for U.S. whites (3). However, as Native American health status and life span have increased, the burden of chronic diseases has become heavier in this community. Malignant neoplasms are the second leading cause of death for Native Americans throughout the country (3). In Alaska, cancer is now the leading cause of death among Alaska Natives (4).

While most detailed AI/AN cancer surveillance, including that for cancer mortality, has focused on populations in the U.S. Southwest and Alaska, several authors have examined cancer trends nationally (4, 5-13). In 1997, Cobb and Paisano examined cancer mortality trends for the period 1989-1993 for AI/AN populations residing in counties on or near Indian Reservations (14). They found that the AI/AN population has lower overall cancer mortality when examined nationally yet displays marked regional variation at the IHS Area level. In a recent MMWR article, Garguillo et al reported nationwide trends in mortality for four major cancers (lung/bronchus, colorectal, prostate, and breast) by sex and race/ethnicity for the period 1990-1998. They found that when compared with mortality rates in other major race/ethnic groups, the AI/AN cancer mortality rate either increased for a given cancer and sex while rates in other groups decreased (most common) or experienced proportionally greater increases or proportionally smaller decreases (prostate) (15). Since these researchers did not attempt to adjust for the known racial misclassification for AI/AN in state vital records, the mortality rates probably are underestimates. Consequently, the disparities likely would be greater if racial misclassification were accounted for (16,17).

These studies indicate several important points. First, U.S. AI/AN mortality rates differ substantially from U.S. rates for all races combined. Second, there are marked regional differences in rates of cancer mortality and incidence among Native Americans in the United States. Third, recent trends in AI/AN cancer mortality are substantially different and generally less favorable when compared to other major racial and ethnic groups. These studies used different methodologies and different time periods making comparisons difficult. The purpose of this publication is to provide current and accurate information about cancer mortality among Native Americans in the United States and to allow comparison with data collected in previous periods using similar methods.

METHODS AND SOURCES OF DATA

Denominator - IHS Service Population:

The IHS service population counts used in this monograph are based on U.S. Census Bureau intercensal county population estimates updated in April 2003 after adjustments

based on the 2000 census were made under interagency agreement between the National Cancer Institute and Census Bureau. During the decennial census the Census Bureau enumerates those individuals who identify themselves as American Indian or Alaska Native. The intercensal estimates are developed using a cohort-component method whereby each component of population change - births, deaths, domestic migration, and international migration is estimated separately for each birth cohort by sex, race, and Hispanic origin. (18). The IHS service population is estimated by including only American Indians and Alaska Natives who reside in counties in which IHS has clinical facilities or that are in or adjacent to federally recognized Indian lands (IHS Service Areas). The IHS service population refers to the AI/AN population residing in IHS Service Areas - whether or not they use IHS services.

From 1994-1998 the average annual IHS service population was **1,469,834** people whereas the entire U.S. AI/AN population was estimated at **2,538,043** (Table 1, columns 2 and 3). Of the 5 regions described this monograph, the Southwest Region had the largest IHS service population (**463,903**), distributed in 5 states and including 4 IHS Areas. Next is the East (**381,098**), representing 17 states and 2 IHS Areas - then the Pacific coast with 4 states, 2 IHS Areas and **298,297** people. The Northern Plains region, representing 3 IHS Areas and 10 states, has **226,393** people and Alaska, representing 1 state and 1 IHS Area, has **99,514** people. This population distribution is shown in Table 1. It is important to note that the population included in these regions does not reflect the concentration of AI/

Table 1: Definition of geographic regions, corresponding IHS service population, total AI/AN population of states included in regions, and service population percentage for the period 1994-1998.

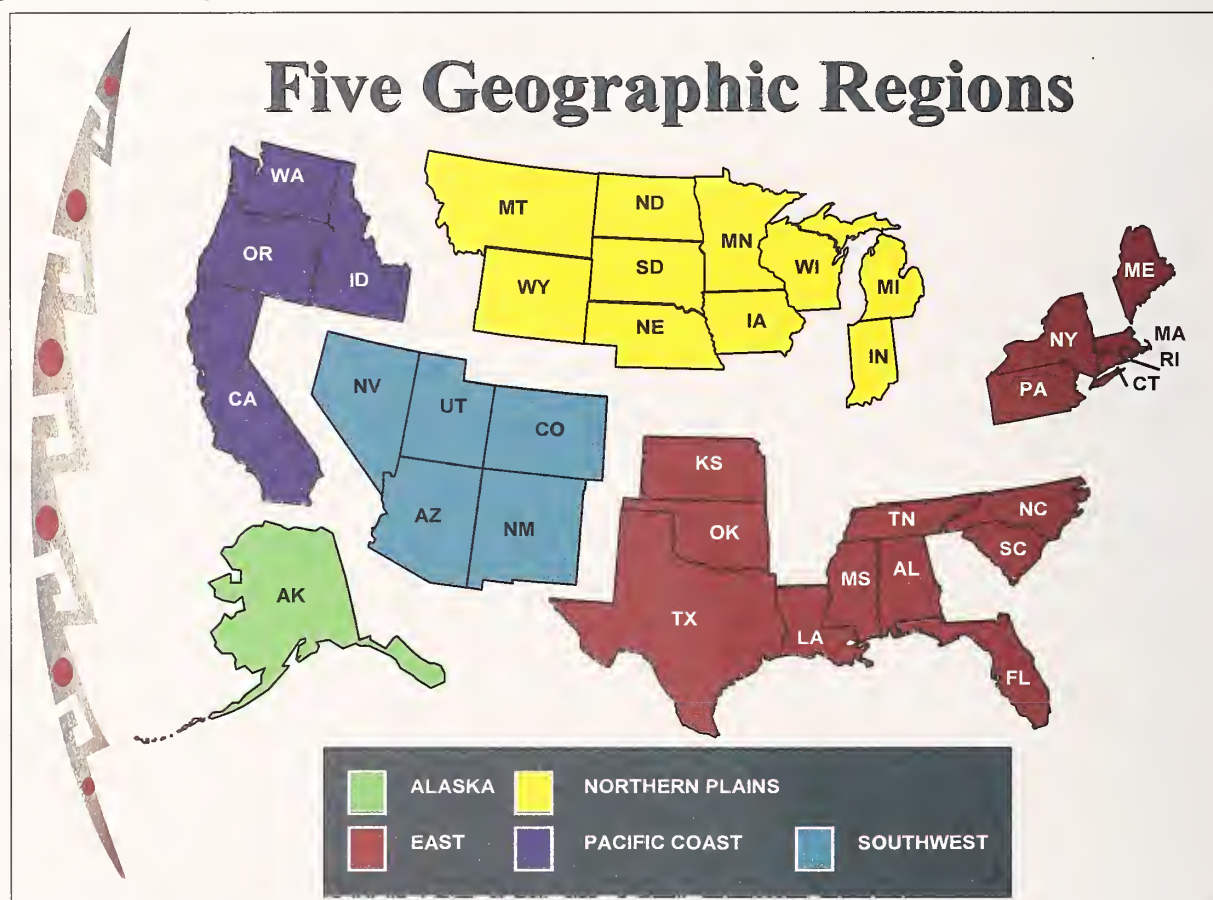
Geographic Region	IHS Service population estimates *	Total AI/AN population *	Service pop. % of total AI/AN	States (IHS Administrative Areas)
ALASKA	99,514	99,514	100.0 %	AK (Alaska)
EAST	381,098	1,006,734	37.9 %	AL, CT, FL, KS, KY, LA, ME, MA, MS, NY, NC, OK, PA, RI, SC, TN, TX, (Nashville, Oklahoma)
NORTHERN PLAINS	226,393	344,734	65.7 %	IA, MI, MN, MO, NE, ND, SD, WI, WY (Aberdeen, Bemidji, Billings)
PACIFIC COAST	298,927	562,898	53.1 %	CA, ID, OR, WA, (California, Portland)
SOUTHWEST	463,903	524,163	88.5 %	AZ, CO, NV, NM, UT (Albuquerque, Navajo, Phoenix, Tucson)
All Regions Combined	1,469,834	2,538,043	57.9 %	

* All population figures are derived from intercensal estimates and annualized for the period 1994-1998. (updated 4/03).

AN in the United States. Rather, it is a useful way to present AI/AN - specific data. (see "Change to Regional Analysis" below.)

Not all U.S. states comprise IHS service areas. Figure 1 illustrates the regions used in this analysis. Based on the intercensal population estimates, approximately 58% of all Native Americans in the United States reside within the geographic boundaries of the IHS service areas.

Figure 1: Five Geographic Regions within IHS Service Area



Numerator - Mortality data:

American Indian and Alaska Native vital event statistics are derived from data furnished by the National Center for Health Statistics (NCHS) of CDC. CDC obtains birth and death records for all U.S. residents from state health departments, based on information reported on official state birth and death certificates. The CDC records provided to IHS include racial/ethnic data but do not contain names, addresses, tribal identity, or medical record identification numbers. Each record lists the single underlying cause of death, which is determined according to standard criteria and data listed on the death certificate. The records also list county of residence, which allows selection of deaths in counties located in IHS service areas. This monograph describes only those Native American deaths between 1994-1998 for which the underlying cause of death was cancer as determined by ICD-9 codes in the range of 140.0 - 208.9 (Table 2).

The Native American vital events data in this publication pertain only to those American Indians and Alaska Natives residing at the time of their deaths in counties that make up the IHS service areas. By limiting the analysis to the AI/AN populations of IHS Service counties where there is more awareness of AI/AN racial/ethnic identity, racial misclassification can be minimized (19).

Since the AI/AN population is considerably younger than the total U.S. population, and for reasons of comparability with previous analyses and publications, mortality rates presented in this publication have been age-adjusted by the direct method using the 1970 U.S. population as the age standard. An adjusted rate that was computed based on a small number of deaths should be interpreted with caution because the adjusted rate may be very different from the true underlying rate.

Change to regional analyses:

Previous monographs presenting cancer mortality data for AI/AN have used the IHS Areas as the geographic unit of analysis (1,2). Though convenient and of interest for programmatic purposes, this approach posed several problems. First, many of the Area rates were not stable because they were based on relatively few cases. Second, many counties are split between two or more IHS Areas and cases were arbitrarily assigned to an Area based on its percentage of county residents. Last, for Navajo Area, use of Area boundaries meant implied tribal affiliation, which some tribal leaders and tribal members object to. Despite the breakout of rates by Area, many of the distinct patterns were more regionally specific than IHS Area-specific. On the basis of these considerations, we decided to use broader regions of the country comprising IHS service areas as the geographic unit of analysis as opposed to IHS administrative areas as was done previously (Figure 1). This approach addresses some of the limitations of the Area analysis and offers more stable rates on which to base programmatic decisions. It also offers more standardization by using state and county boundaries that are more consistent with Census data and with analyses used by other entities. Aggregating data over a 5-year period is another method we used to control for fluctuation in rates that occurs when there is a relatively small population and a small number of deaths.

Analysis:

Data were examined for all cancer deaths combined as well as for leading anatomical cancer sites. Average annual age-adjusted mortality rates were calculated using the estimated 1994-1998 population for each Region (Table 1, column 2; Figure 1). The age-adjusted cancer mortality rates described in this publication were computed by the direct method using as the standard the 1970 U.S. population.* To compute 95% confidence intervals for each rate, we used the method described by Breslow and Day (20). We also calculated mortality rate ratios (MRR) and 95% confidence intervals (CI) to compare the relative difference in age-adjusted mortality rates with the U.S. general population (USG) for the same time period.

* Age-specific rates and rates adjusted to the 1940 or 2000 standard U.S. population are not included in this publication, but may be obtained by contacting the IHS National Epidemiology Program, 5300 Homestead Road, NE, Albuquerque, NM 87110, telephone (505) 248-4132, FAX (505) 248-4393.

RESULTS

From 1994 through 1998, the average annual age-adjusted cancer mortality rate among Native Americans, for all cancers among both sexes, was 129.4 deaths per 100,000 people for all regions combined (MRR 0.78: CI 0.76-0.80). This rate was significantly lower than the overall U.S. rate of 165.7 per 100,000 people. When examined by sex, males had greater mortality (153.8 per 100,000) than females (112.1 per 100,000) but both groups had lower mortality when compared to the U.S. general population (MRR = 0.75: CI 0.73-0.78 for men and MRR = 0.81: CI 0.78-0.84 for women).

There was marked variation among regions; the Southwest, Pacific Coast, and East all had rates below that of the U.S. general population (MRR 0.61, 0.65 and 0.68, respectively). Alaska and the Northern Plains had higher rates (MRR 1.22 and 1.40, respectively).

When we examined cancer mortality rates by specific cancer site and by sex, wide variations among the regions were evident. Lung cancer was the leading cause of cancer mortality in the United States as well as for Native Americans as a whole (Table 16). Among AI and AN populations, for all regions combined, lung cancer was followed by colorectal, "ill defined," breast, and prostate cancers. Lung cancer was the leading cause of cancer death in all regions except the Southwest, where the leading cause was "ill defined" cancer. For all regions combined, the MRR for the 13 leading causes of cancer death are shown in Figures 2 - 4. Detailed results for thirteen individual cancer sites are shown in Figures 5 - 35 and Tables 3 - 15. For each region, the five leading causes of cancer mortality are shown in Table 16. Detailed results by region for individual cancer sites (number of deaths and age-adjusted average annual rates) are shown in Tables 17-22.

DISCUSSION

The data presented here demonstrate that the cancer mortality burden among Native Americans throughout the United States is very different from that of the general U.S. population. In general, Native Americans in the Southwest, East, and Pacific Coast regions had lower cancer mortality rates than those in the northern part of the country. However, within any geographic region, mortality rates for specific cancers were not all lower or all higher than the U.S. rates. For each specific type of cancer and for each sex, varying ranks by region were found.

The variability in lung and bronchus cancer mortality seen among Native Americans across regions (high in Northern Plains and Alaska - low in Southwest and East) is primarily a consequence of the variability in tobacco use. Smoking prevalence among Native American adults is relatively low in the Southwest but is nearly 50% in the northern part of the country and is increasing rapidly in Alaska (21). Variability in cancer mortality for other cancers is more difficult to explain and may be linked to differences in diet, prevalence of obesity and alcoholism, access to care, or later stage diagnosis.

There are several well-recognized limitations in using death certificate data to examine cause-specific mortality. These include racial misclassification and errors in reporting residence at time of death, or the precise cause of death. Several studies have shown that racial misclassification of Native Americans on death certificates is a problem in some regions of the country (16,17,22). Additionally, data show that Native Americans die more often than whites of “signs, symptoms, and ill-defined conditions” (23). These two latter problems would lead to underestimations of the true overall cancer mortality rates as well as underestimations of mortality for specific types of cancer. Our analysis shows “ill-defined” cancers as the leading cause of cancer mortality in the AI/AN population of the Southwest. An additional limitation is that some of the rates published in this monograph are based on only a few cases. These have been included for purposes of consistency between tables; however, such rates should be interpreted with caution. The results of tests of statistical significance are noted for all comparisons with U.S. all-race rates in Tables 3-22.

All rates in this publication were derived using projections from the 1990 Census and adjusted based on the 2000 Census. Though we used the most recently published Census estimates, the degree to which there may be errors in the accurate counting of Native Americans is not precisely known. However, evidence would suggest that any errors that may have occurred would be in undercounting. Errors in using population figures that may be lower than the true numbers would lead to overestimation of the true cancer mortality rates for regions of the country where this is a problem.

Despite these limitations, the findings shown here clearly demonstrate that Native Americans across the country experience different cancer mortality patterns both between regions and in comparison with U.S. all-race rates. The results of this study clearly show that Native Americans in the Southwest have markedly different cancer mortality patterns from other Native Americans in the United States. This finding, along with differences in risk factors, would lead one to presume that cancer incidence patterns would also differ. Unfortunately, the most complete data on cancer incidence among AI/AN, with relatively little racial misclassification, are from limited areas, specifically from cancer registries in the Southwest and Alaska. Presently, we are working with the CDC’s National Program of Cancer Registries (NPCR) and the National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) Program in a study to link IHS patient registration data with approximately 30 state cancer registries to identify AI/AN persons diagnosed with cancer who have been misclassified as non-Native. Preliminary results of this initiative show significant racial misclassification. After correction of these errors, we will have access to much improved cancer incidence data in the overall U.S. AI/AN population.

To better understand the extent of cancer among Native Americans in the United States, further collaborative efforts between the IHS-SEER- and NPCR-supported tumor registries should be promoted and expanded. Such collaborations would provide needed data for developing preventive programs and intervention strategies that must be targeted appropriately for specific populations. Until such data are available, cancer mortality data can illuminate the extent of the problem and help provide direction to decision makers about where to apply limited resources for the most beneficial impact.

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Figures and Tables for Regional Differences

Table 2: Cancer Site Groupings for ICD-9 Coded Mortality Data

Underlying Cause of Death	ICD-9 Code
Oral Cavity and Pharynx	
Lip	140.0 – 140.9
Tongue	141.0 – 141.9
Salivary Gland	142.0 – 142.9
Floor of Mouth	144.0 – 144.9
Gingiva and other mouth	143.0 – 143.9, 145.0 – 145.6, 145.8 – 145.9
	146.0 – 146.2
Tonsil	146.3 – 146.9
Oropharynx	147.0 – 147.9
Nasopharynx	148.0 – 148.9
Hypopharynx	149.0 – 149.9
Other mouth/pharynx	
Digestive System	
Esophagus	150.0 – 150.9
Stomach	151.0 – 151.9
Small intestine	152.0 – 152.9
Colon and Rectum	153.0 – 154.1, 159.0
Anus, anal canal, & anorectum	154.2 – 154.3, 154.8
Liver & Intrahepatic duct	155.0 – 155.2
Gallbladder	156.0
Other biliary	156.1 – 156.9
Pancreas	157.0 – 157.9
Other digestive system	158.0 – 158.9, 159.8 – 159.9
Respiratory system	
Nose, nasal cavity, & middle ear	160.0 – 160.9
Larynx	161.0 – 161.9
Lung & bronchus	162.2 – 162.9
Trachea & other respiratory system	162.0, 163.0 – 165.9
Bones and joints	170.0 – 170.9
Soft tissue (including heart)	171.0 – 171.9
Malignant melanoma	172.0 – 172.9
Breast	174.0 – 174.9, 175.0
Female genital system	
Cervix	180.0 – 180.9
Corpus uterus	182.0 – 182.1, 182.8
Uterus, NOS	179.0

Table 2: Cancer Site Groupings for ICD-9 Coded Mortality Data con't.

Underlying Cause of Death	ICD-9 Code
Female genital system con't.	
Ovary	183.0
Vagina	184.0
Vulva	184.1 – 184.4
Other female genital system	181.0, 183.2 – 183.9, 184.8 – 184.9
Male genital system	
Prostate	185.0
Testis	186.0 – 186.9
Penis	187.1 – 187.4
Other male genital system	187.5 – 187.9
Urinary system	
Urinary bladder	188.0 – 188.9
Kidney & Renal pelvis	189.0 – 189.1
Ureter	189.2
Other urinary system	189.3 – 189.4, 189.8 – 189.9
Eye & Orbit	190.0 – 190.9
Brain and other nervous system	191.0 – 191.9, 192.0 – 192.3, 192.8 – 192.9
Thyroid gland	193.0
Other endocrine (including thymus)	164.0, 194.0 – 194.9
Hodgkin's disease	201.0 – 201.9
Non-Hodgkin's lymphomas	200.0 – 200.8, 202.0 – 202.2, 202.8 – 202.9
Multiple myeloma	203.0, 203.2 – 203.8
Leukemias	
Lymphocytic:	
Acute lymphocytic	204.0
Chronic lymphocytic	204.2
Other lymphocytic	204.2 – 204.9
Myeloid:	
Acute myeloid	205.0
Chronic myeloid	205.1
Other myeloid	205.2 – 205.9
Monocytic:	
Acute monocytic	206.0
Chronic monocytic	206.1
Other leukemias	202.4, 203.1, 207.0 – 208.9
Ill-defined & Unspecified Sites	159.1, 195.0 195.8, 196.1 – 196.9, 199.0 – 199.1, 202.3, 202.5 – 202.6

Figure 2

Cancer Mortality Rate Ratio for Both Sexes, 1994-98, AI/AN Compared to U.S. All Races

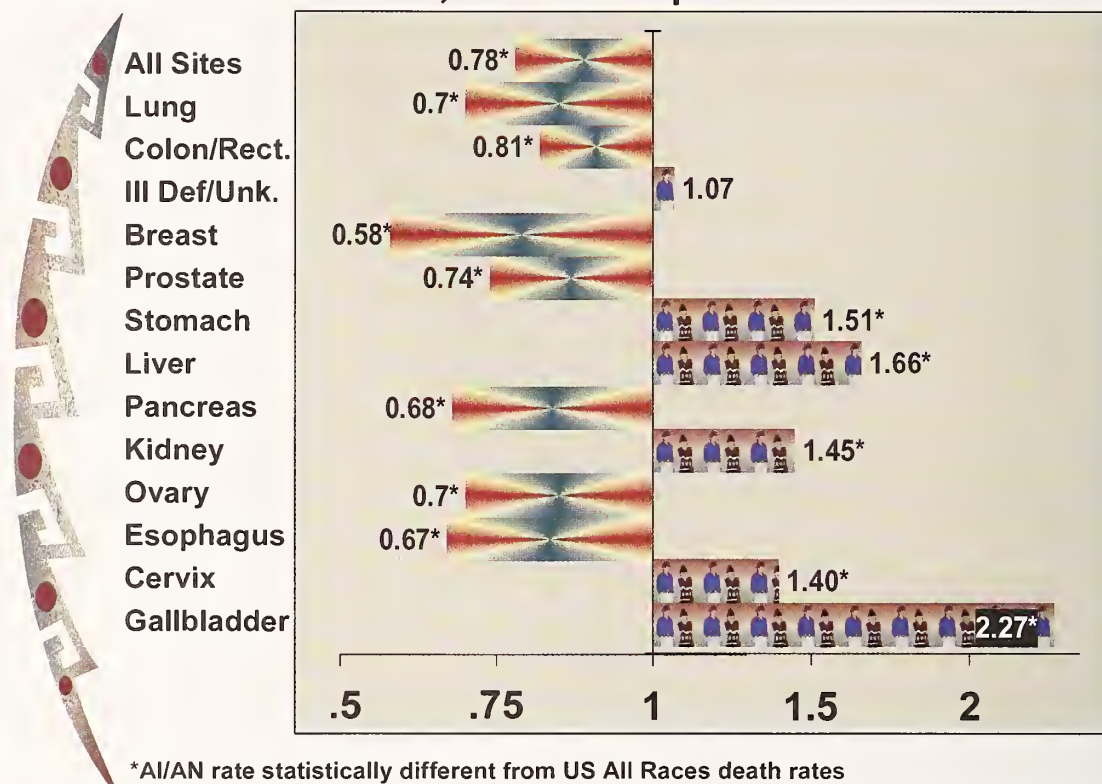


Figure 3

Cancer Mortality Rate Ratio for Males, 1994-98, AI/AN Compared to U.S. All Races

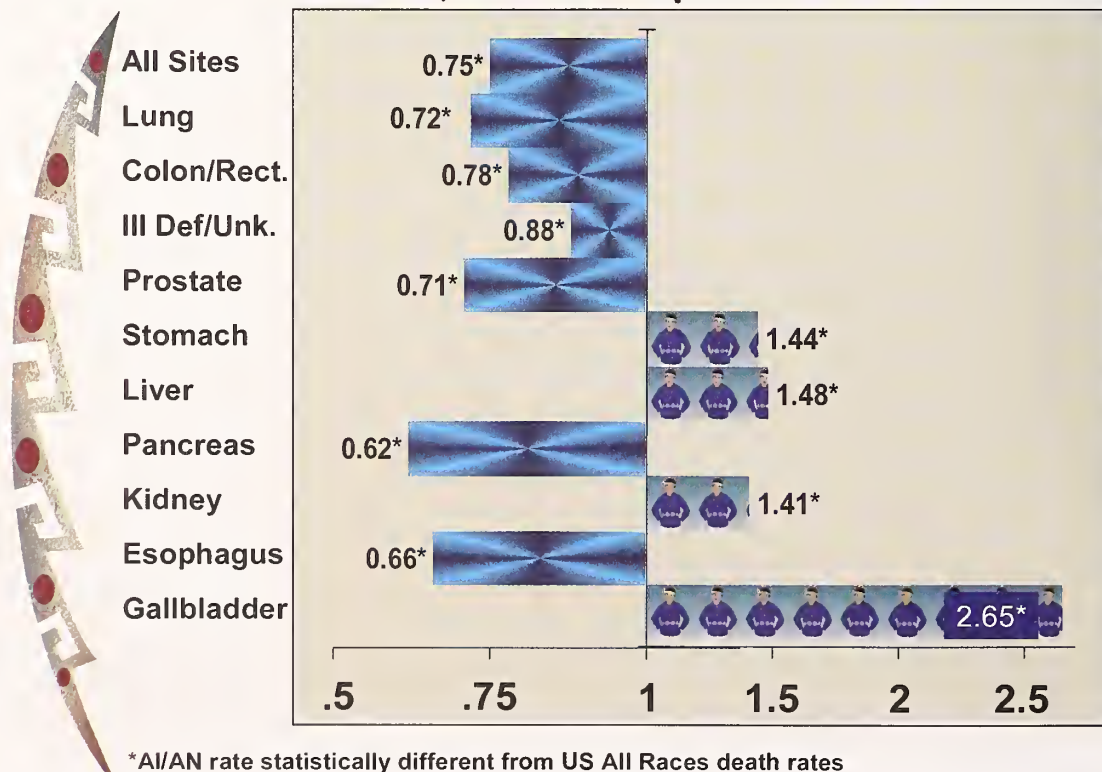


Figure 4

Cancer Mortality Rate Ratio for Females, 1994-98, AI/AN Compared to U.S. All Races

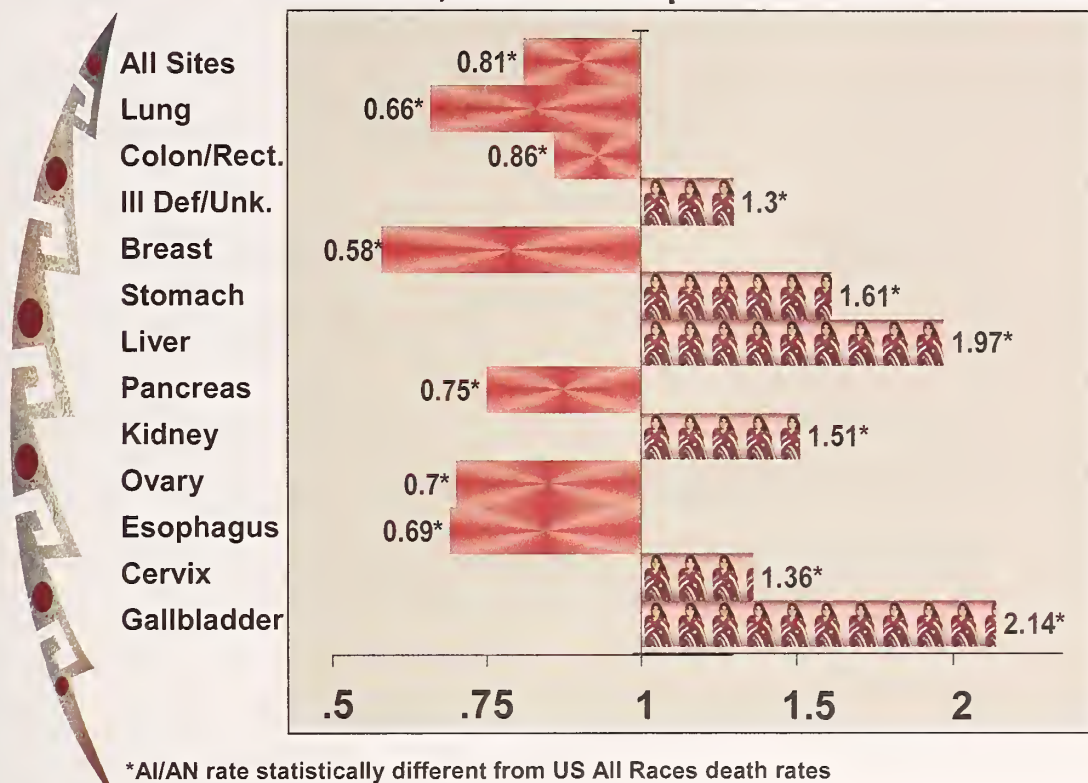
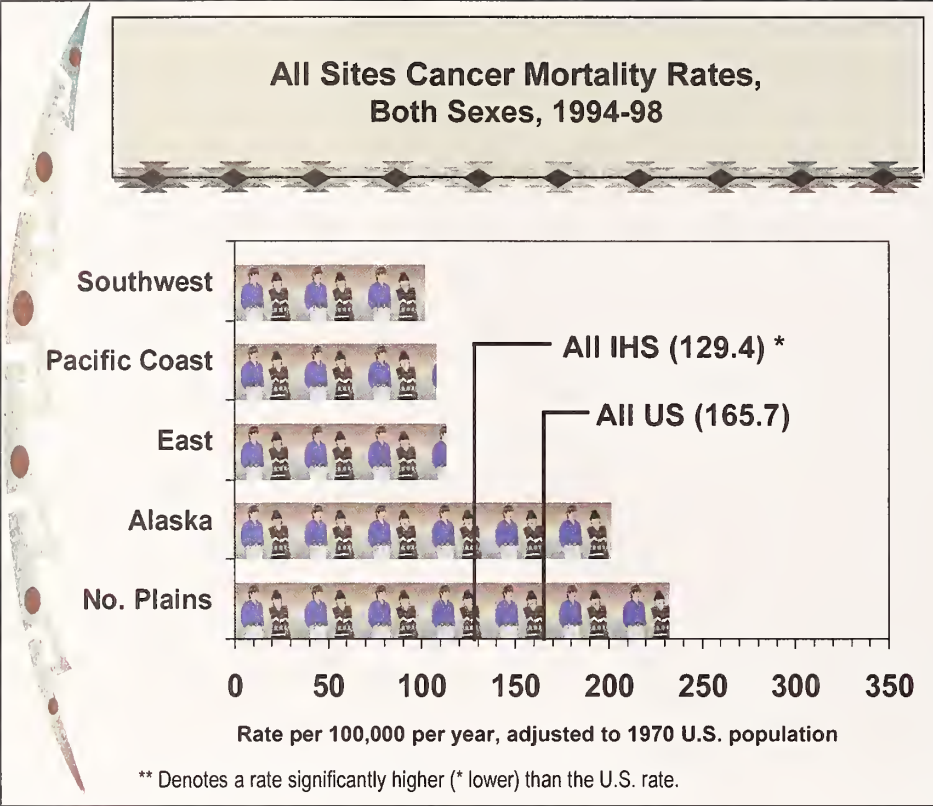


Figure 5



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for all cancers is 129.4 per 100,000 over the entire IHS service population. This rate is significantly lower than the U.S. rate for both sexes.

Looking at the rates regionally, the Northern Plains and Alaska regions were significantly higher than the U.S. rate. The remaining three regions (Pacific Coast, Southwest, and East) were significantly lower than the U.S. rate for both sexes.

Table 3

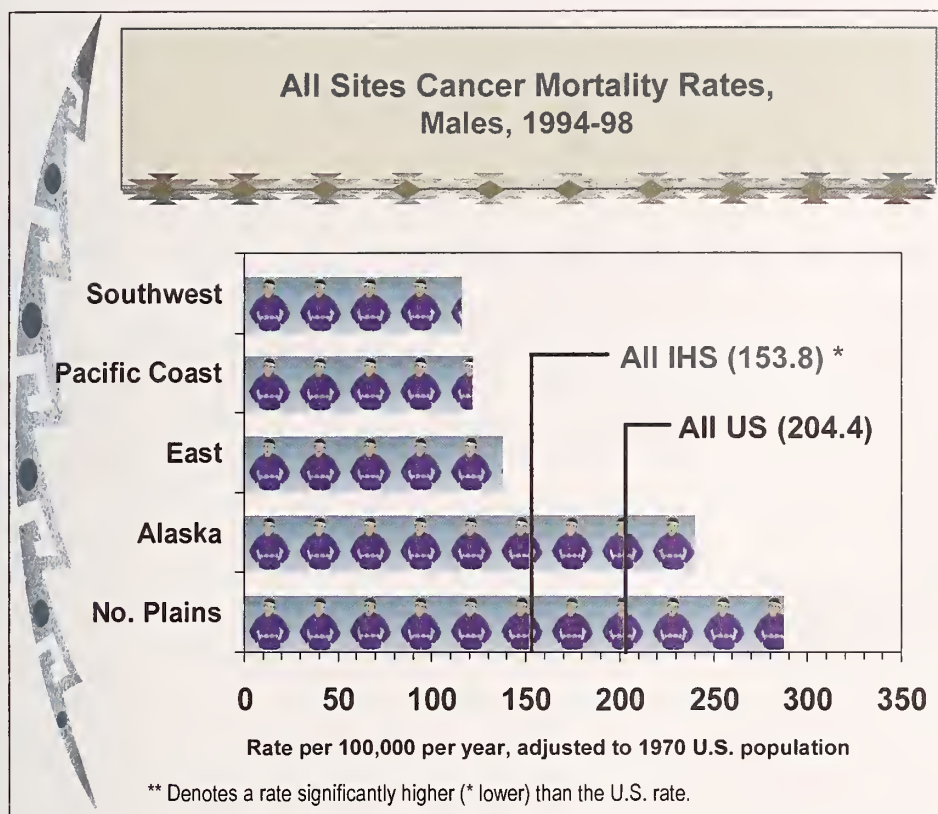
Table 3 lists the total number of deaths due to all cancers from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

All Sites Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		165.7		204.4		138.8
All IHS Regions	5952	129.4*	3016	153.8*	2936	112.1*
Alaska	593	201.5**	321	239.9**	272	170.1**
East	1602	112.6*	811	137.8*	791	96.3*
No. Plains	1383	232.1**	712	287.4**	671	194.8**
Pacific Coast	970	107.7*	479	122.0*	491	97.7*
Southwest	1404	101.3*	693	115.6*	711	90.5*

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 6



For males, the 1994 to 1998 age-adjusted cancer mortality rate for all cancers is 153.8 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for males.

Looking at the rates regionally, the Northern Plains and Alaska regions have rates significantly higher than the U.S. rate. The Pacific Coast, Southwest and East regions have rates significantly lower than the U.S. rates for males.

Figure 7

For females, the 1994 to 1998 age-adjusted cancer mortality rate for all cancers is 112.1 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for females.

Looking at the rates regionally, the Northern Plains and Alaska regions have rates significantly higher than the U.S. rate. The remaining three regions (Pacific Coast, East and Southwest) have rates significantly lower than the U.S. rates for females.

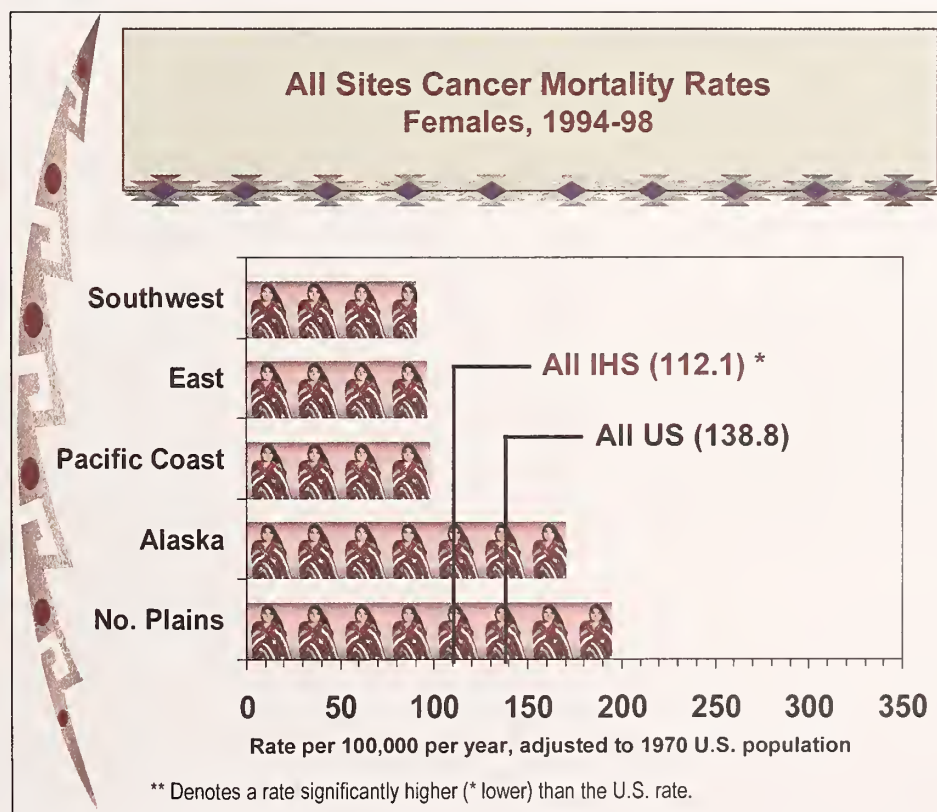
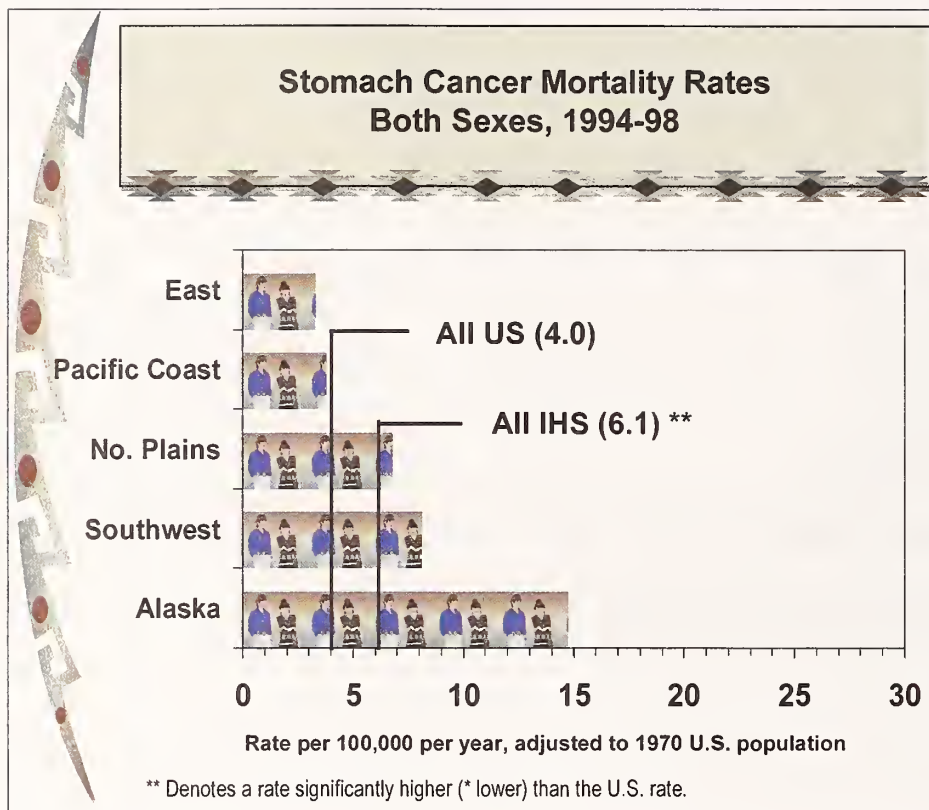


Figure 8




For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for stomach cancer is 6.1 per 100,000 over the entire IHS service population. This rate is significantly higher than the U.S. rate for both sexes.

Looking at the rates regionally, the Alaska, Southwest, and Northern Plains regions had rates that were significantly higher than the U.S. rate.

Table 4

Table 4 lists the total number of deaths due to stomach cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

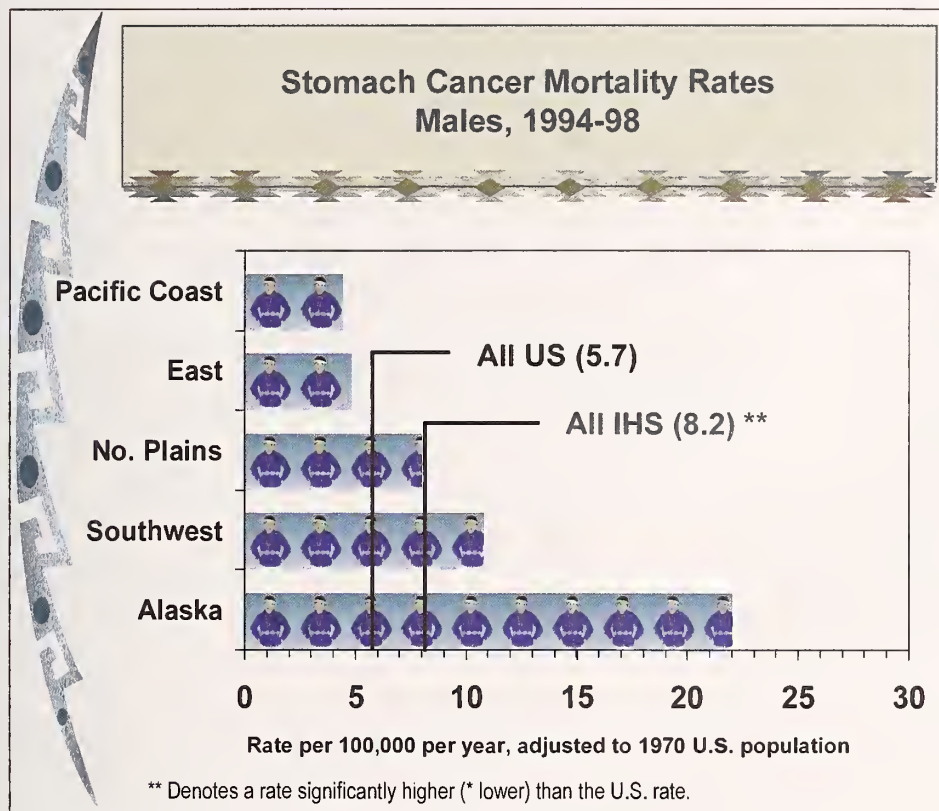
Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.



	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		4.0		5.7		2.8
All IHS Regions	291	6.1**	171	8.2**	120	4.4**
Alaska	51	14.7**	35	22.0**	16	8.1**
East	46	3.3	28	4.8	18	2.2
No. Plains	45	6.8**	23	8.0	22	5.9**
Pacific Coast	36	3.8	20	4.4	16	3.2
Southwest	113	8.1**	65	10.8**	48	6.1**

**** Denotes a rate significantly higher (*lower) than the U.S. rate.**

Figure 9



For males, the 1994 to 1998 age-adjusted cancer mortality rate for stomach cancer is 8.2 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for males.

Looking at the rates regionally, the Alaska and Southwest regions have rates significantly higher than the U.S. rate.

Figure 10

For females, the 1994 to 1998 age-adjusted cancer mortality rate for stomach cancer is 4.4 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for females.

Looking at the rates regionally, the Alaska, Southwest and Northern Plains regions have rates significantly higher than the U.S. rate.

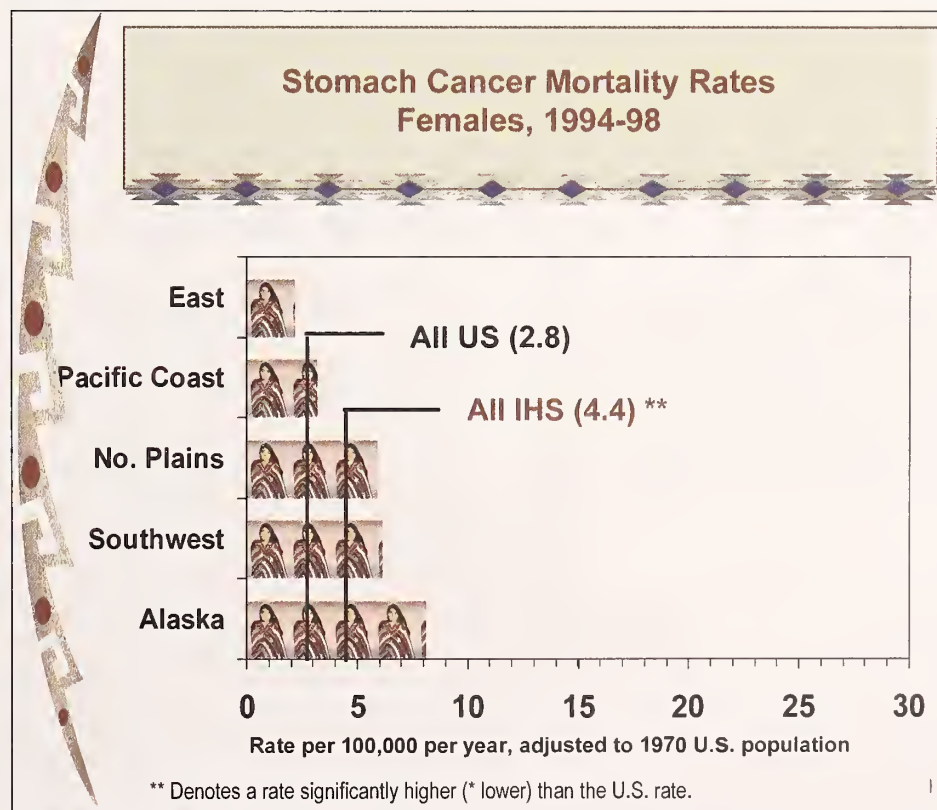
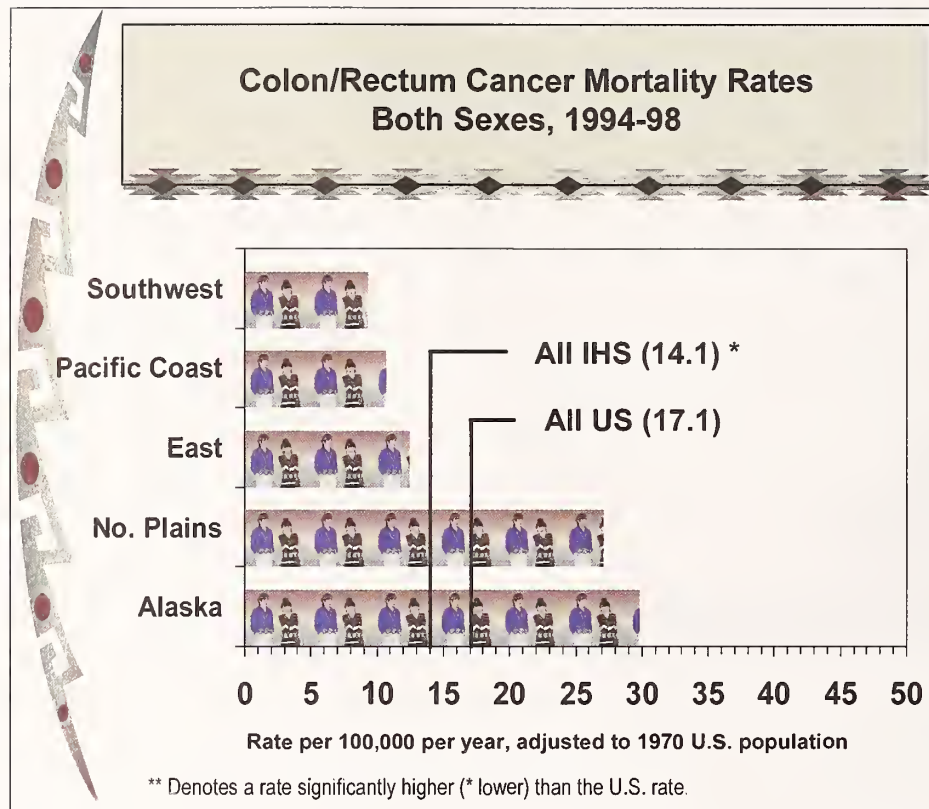


Figure 11



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for colon/rectum cancer is 14.1 per 100,000 over the entire IHS service population. This rate is significantly lower than the U.S. rate for both sexes.

Looking at the rates regionally, the Alaska and Northern Plains regions were significantly higher than the U.S. rate. The remaining three regions (Southwest, Pacific Coast, and East) were significantly lower than the U.S. rate for both sexes.

Table 5

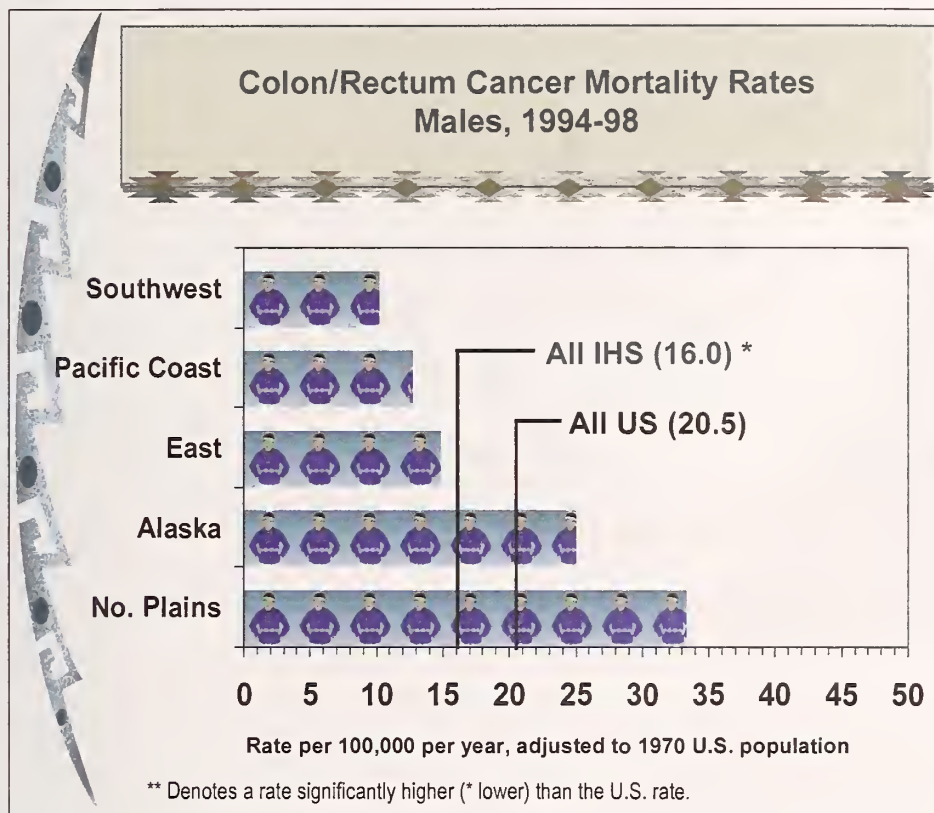
Table 5 lists the total number of deaths due to colorectal cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Colon/Rectum Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		17.1		20.5		14.5
All IHS Regions	642	14.1*	320	16.0*	322	12.5*
Alaska	83	29.8**	33	25.0	50	33.2**
East	176	12.4*	89	14.8*	87	10.7*
No. Plains	160	27.1**	85	33.3**	75	22.5**
Pacific Coast	94	10.6*	49	12.7*	45	8.9*
Southwest	129	9.3*	64	10.2*	65	8.5*

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 12



For males, the 1994 to 1998 age-adjusted cancer mortality rate for colon/rectum cancer is 16.0 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for males.

Looking at the rates regionally, the Northern Plains region has a rate significantly higher than the U.S. rate. The Southwest, Pacific Coast, and East regions have rates significantly lower than the U.S. rates for males.

Figure 13

For females, the 1994 to 1998 age-adjusted cancer mortality rate for colon/rectum cancer is 12.5 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for females.

Looking at the rates regionally, the Alaska and Northern Plains regions have rates significantly higher than the U.S. rate. The remaining three regions (Southwest, Pacific Coast, and East) have rates significantly lower than the U.S. rates for females.

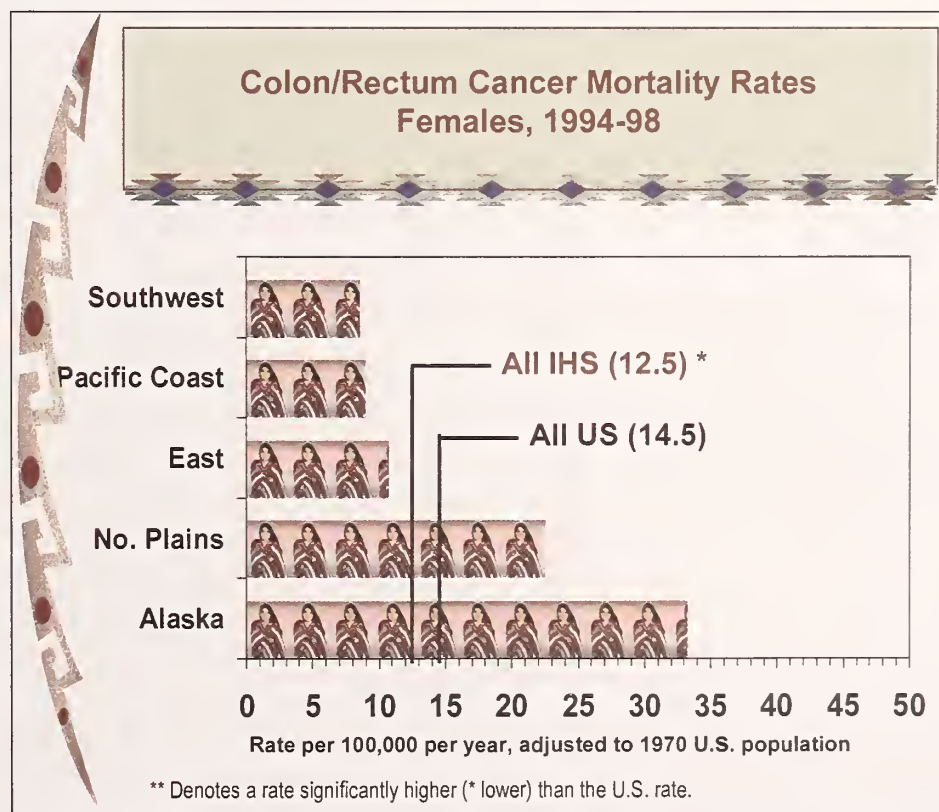
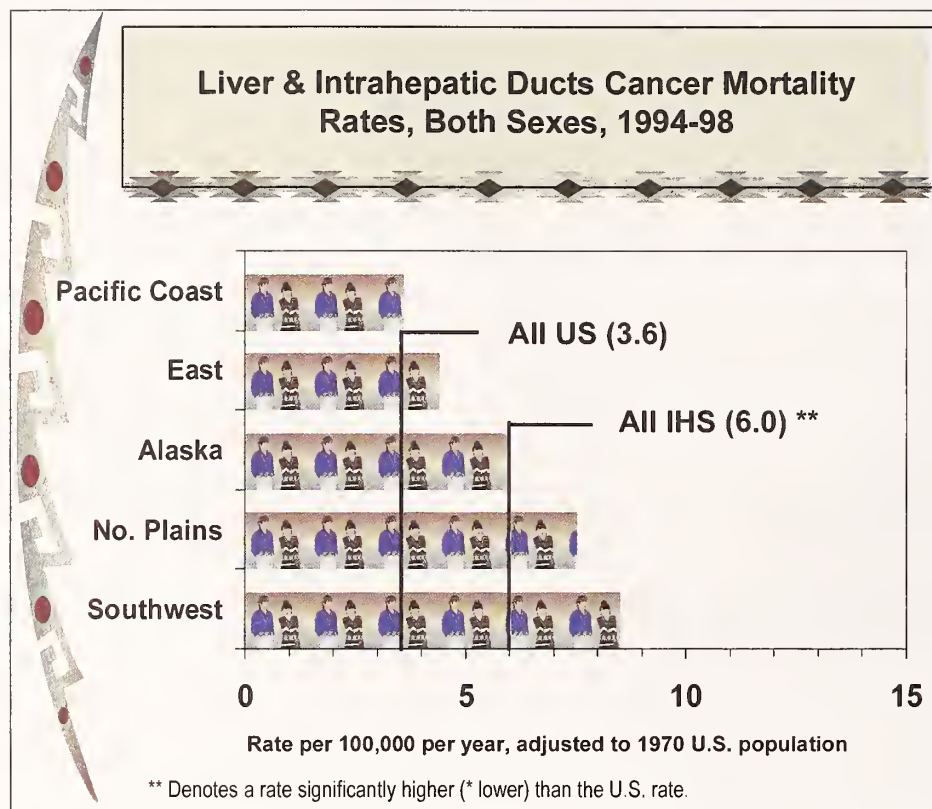


Figure 14



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for liver & intrahepatic ducts cancer is 6.0 per 100,000 over the entire IHS service population. This rate is significantly higher than the U.S. rate for both sexes.

Looking at the rates regionally, the Southwest and Northern Plains regions were significantly higher than the U.S. rate for both sexes combined.

Table 6

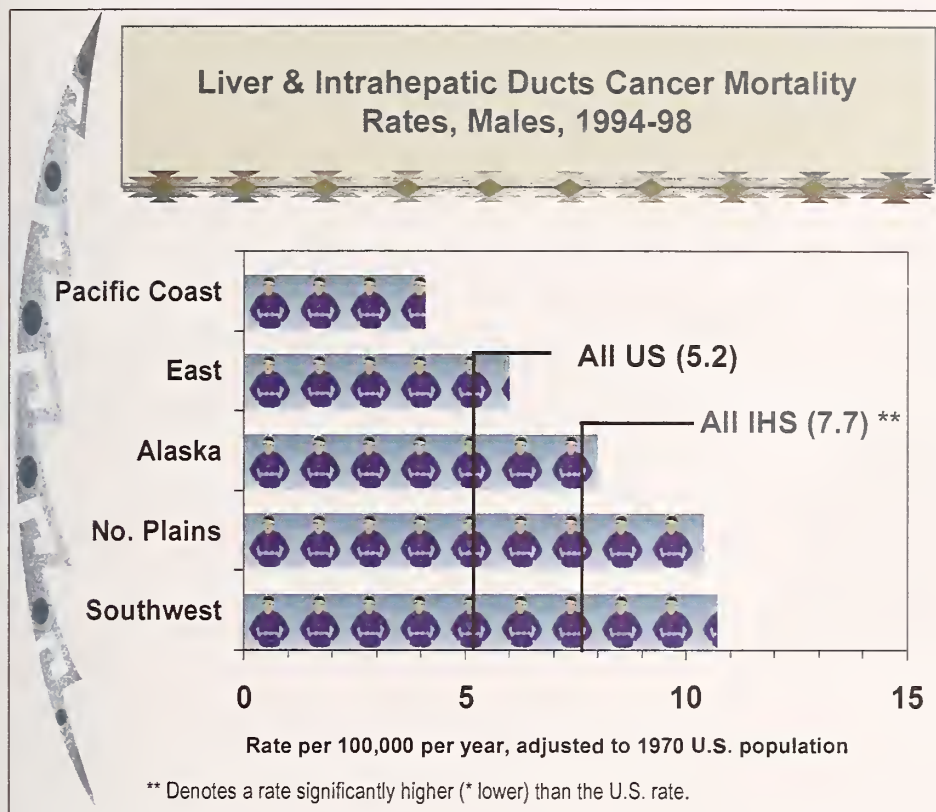
Table 6 lists the total number of deaths due to liver & intrahepatic duct cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		3.6		5.2		2.3
All IHS Regions	269	6.0**	152	7.7**	117	4.6**
Alaska	17	5.9	10	8.0	7	4.4
East	63	4.4	36	6.0	27	3.2
No. Plains	45	7.5**	28	10.4**	17	5.2**
Pacific Coast	32	3.6	16	4.1	16	3.2
Southwest	112	8.5**	62	10.7**	50	6.7**

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 15



For males, the 1994 to 1998 age-adjusted cancer mortality rate for liver & intrahepatic ducts cancer is 7.7 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for males.

Looking at the rates regionally, the Southwest and Northern Plains region have rates significantly higher than the U.S. rate for males.

Figure 16

For females, the 1994 to 1998 age-adjusted cancer mortality rate for liver & intrahepatic ducts cancer is 4.6 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for females.

Looking at the rates regionally, the Southwest and Northern Plains regions have rates significantly higher than the U.S. rate for females.

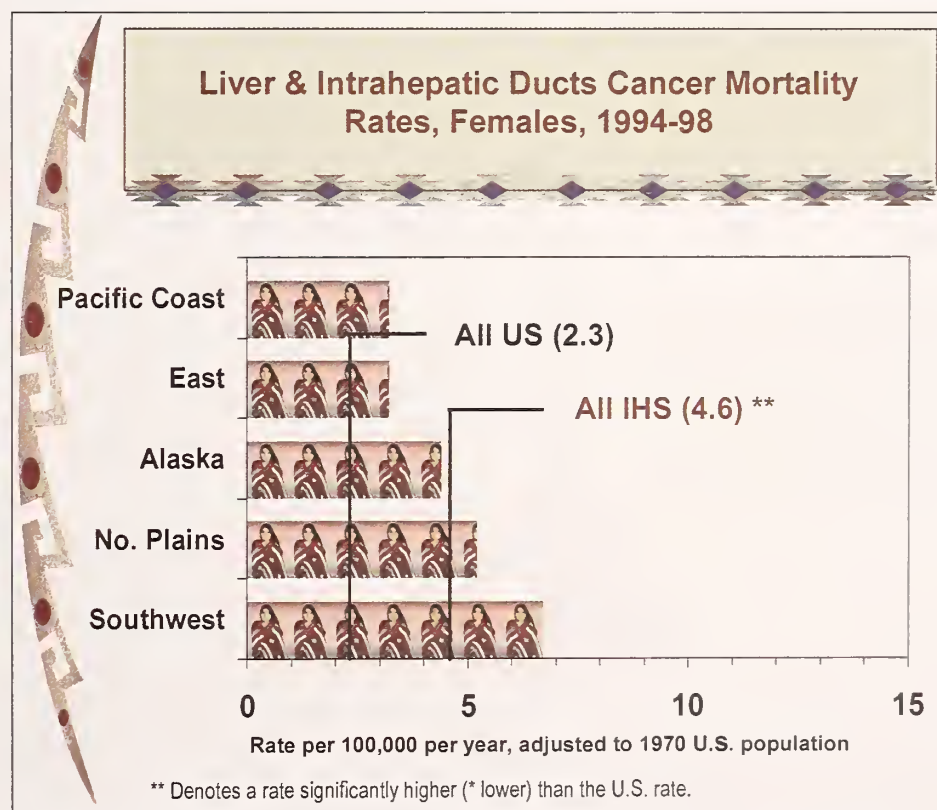
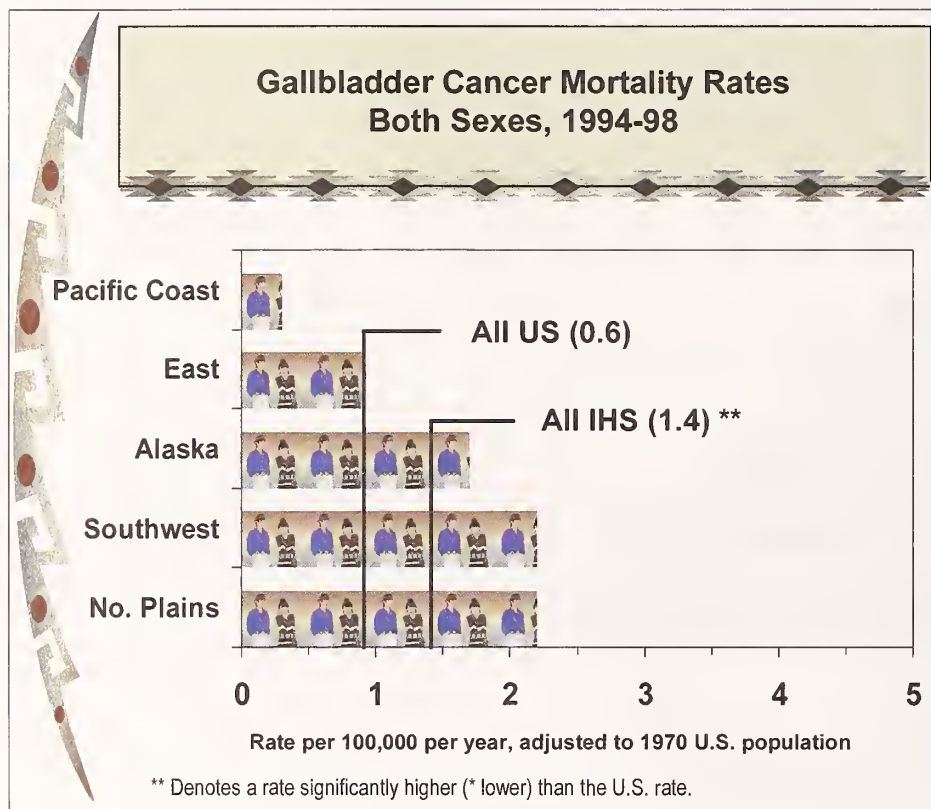


Figure 17



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for gallbladder cancer is 1.4 per 100,000 over the entire IHS service population. This rate is significantly higher than the U.S. rate for both sexes.

Looking at the rates regionally, the Northern Plains and Southwest regions were significantly higher than the U.S. rate.

Table 7

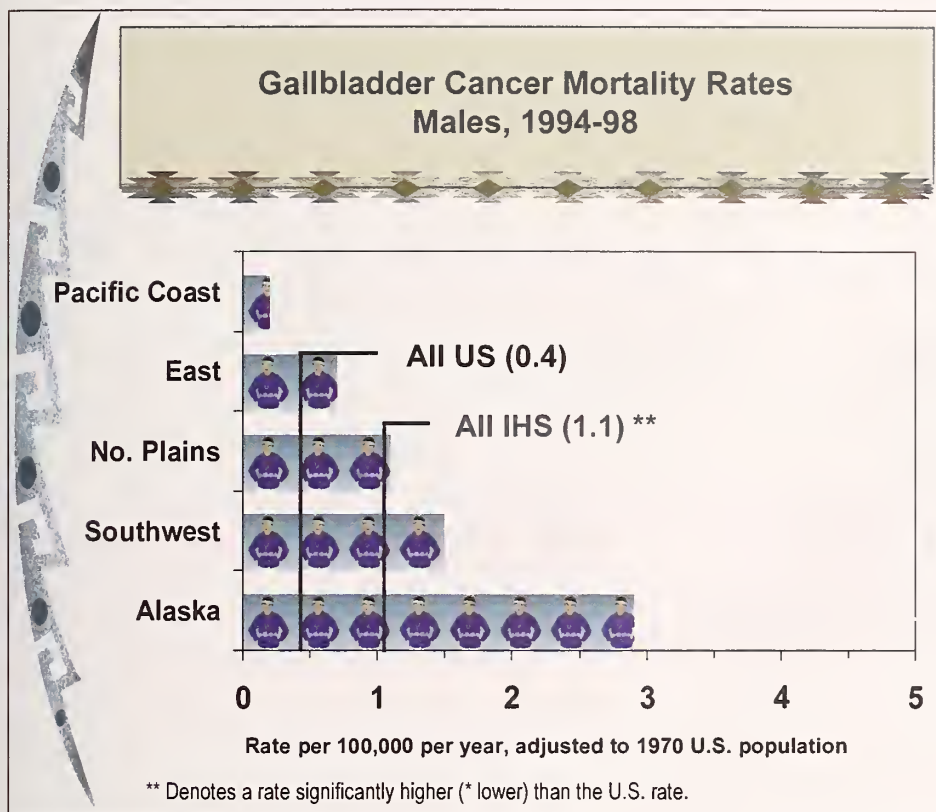
Table 7 lists the total number of deaths due to gallbladder cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Gallbladder Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		0.6		0.4		0.8
All IHS Regions	61	1.4**	19	1.1**	42	1.6**
Alaska	4	1.7	3	2.9**	1	0.7
East	12	0.9	4	0.7	8	0.9
No. Plains	13	2.2**	3	1.1	10	3.1**
Pacific Coast	3	0.3	1	0.2	2	0.3
Southwest	29	2.2**	8	1.5**	21	2.8**

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 18



For males, the 1994 to 1998 age-adjusted cancer mortality rate for gallbladder cancer is 1.1 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for males.

Looking at the rates regionally, the Alaska and Southwest regions have rates significantly higher than the U.S. rate.

Figure 19

For females, the 1994 to 1998 age-adjusted cancer mortality rate for gallbladder cancer is 1.6 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for females.

Looking at the rates regionally, the Northern Plains and Southwest regions have rates significantly higher than the U.S. rate.

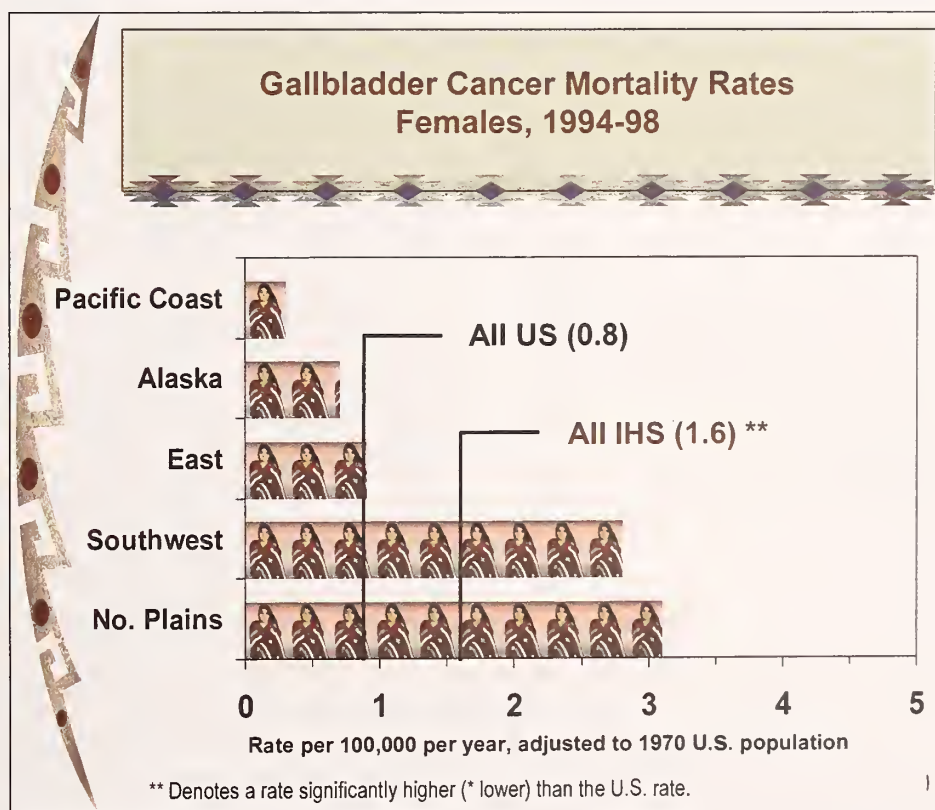
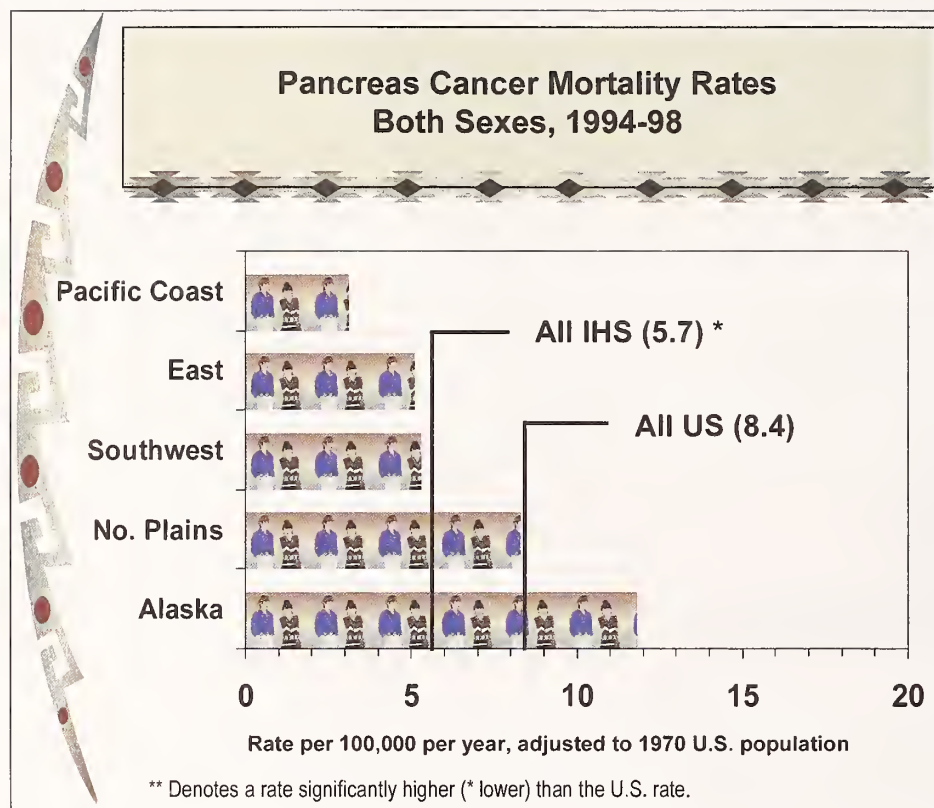


Figure 20



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for pancreatic cancer is 5.7 per 100,000 over the entire IHS service population. This rate is significantly lower than the U.S. rate for both sexes.

Looking at the rates regionally, the Pacific Coast, East, and Southwest regions were significantly lower than the U.S. rate for both sexes combined.

Table 8

Table 8 lists the total number of deaths due to pancreatic cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

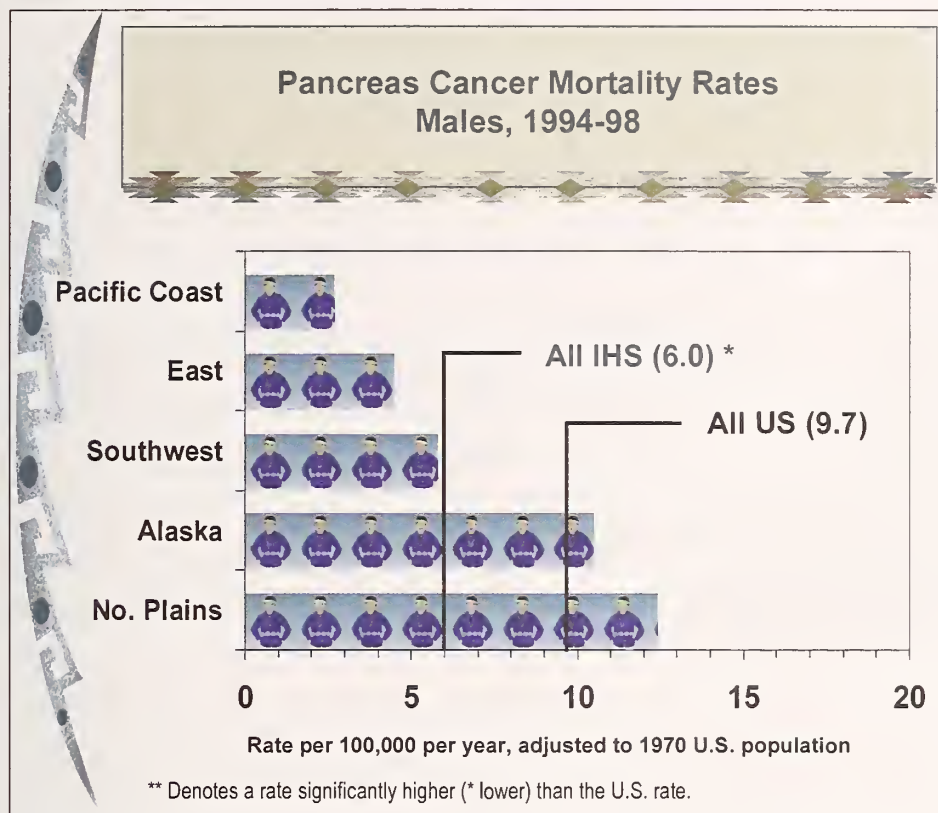
Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Pancreas Cancer Mortality Rates and Total Number of Deaths, 1994-98

	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		8.4		9.7		7.3
All IHS Regions	255	5.7*	117	6.0*	138	5.4*
Alaska	35	11.8	15	10.5	20	13.0**
East	71	5.1*	25	4.5*	46	5.6
No. Plains	49	8.3	32	12.4	17	5.1
Pacific Coast	31	3.1*	12	2.7*	19	3.4*
Southwest	69	5.3*	33	5.8*	36	4.8*

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 21



For males, the 1994 to 1998 age-adjusted cancer mortality rate for pancreatic cancer is 6.0 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for males.

Looking at the rates regionally, the Pacific Coast, East, and Southwest regions have rates significantly lower than the U.S. rate for males.

Figure 22

For females, the 1994 to 1998 age-adjusted cancer mortality rate for pancreatic cancer is 5.4 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for females.

Looking at the rates regionally, the Alaska region has a rate significantly higher than the U.S. rate. The Pacific Coast and Southwest have rates significantly lower than the U.S. rates for females.

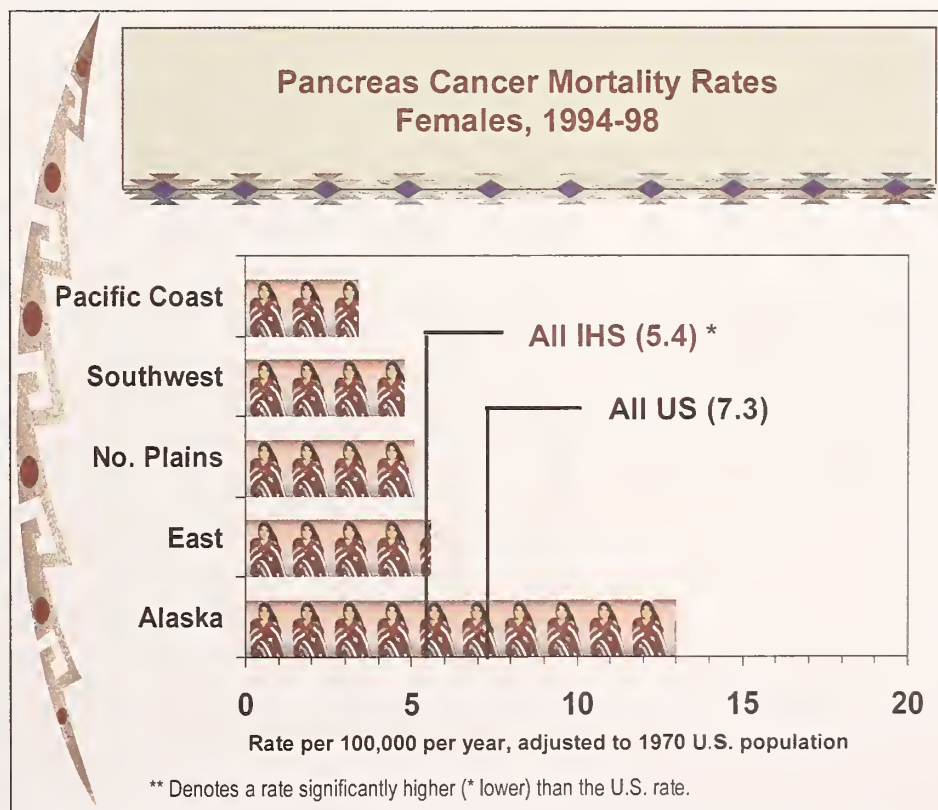
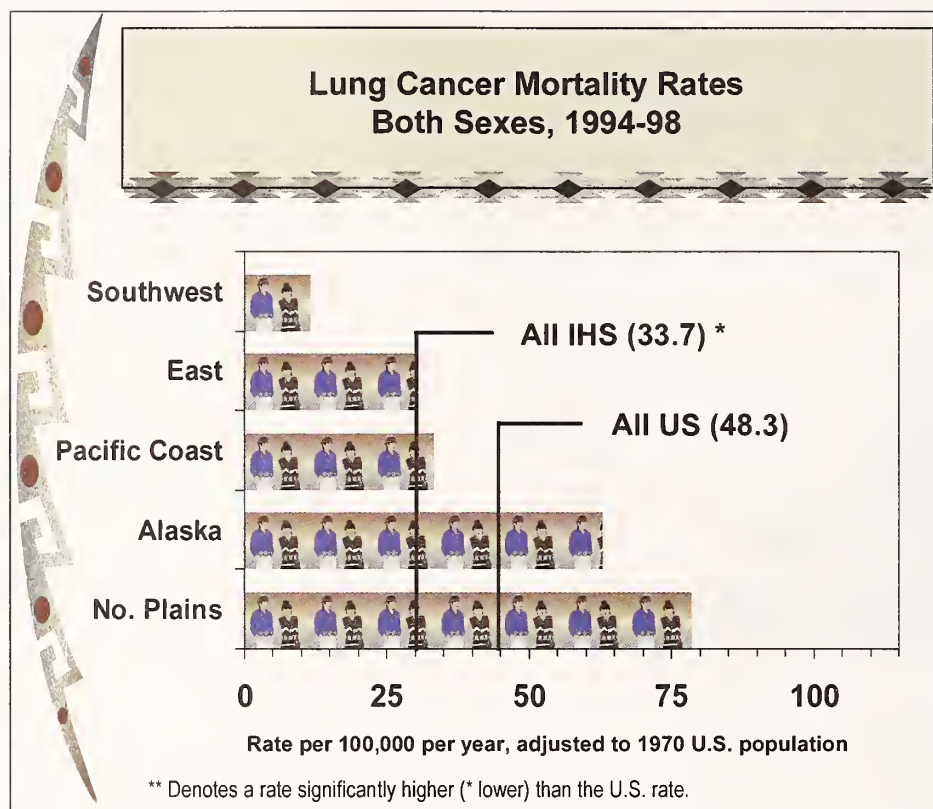


Figure 23



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for lung cancer is 33.7 per 100,000 over the entire IHS service population. This rate is significantly lower than the U.S. rate for both sexes.

Looking at the rates regionally, the Northern Plains and Alaska regions were significantly higher than the U.S. rate. The remaining three regions (Southwest, East, and Pacific Coast) were significantly lower than the U.S. rate for both sexes.

Table 9

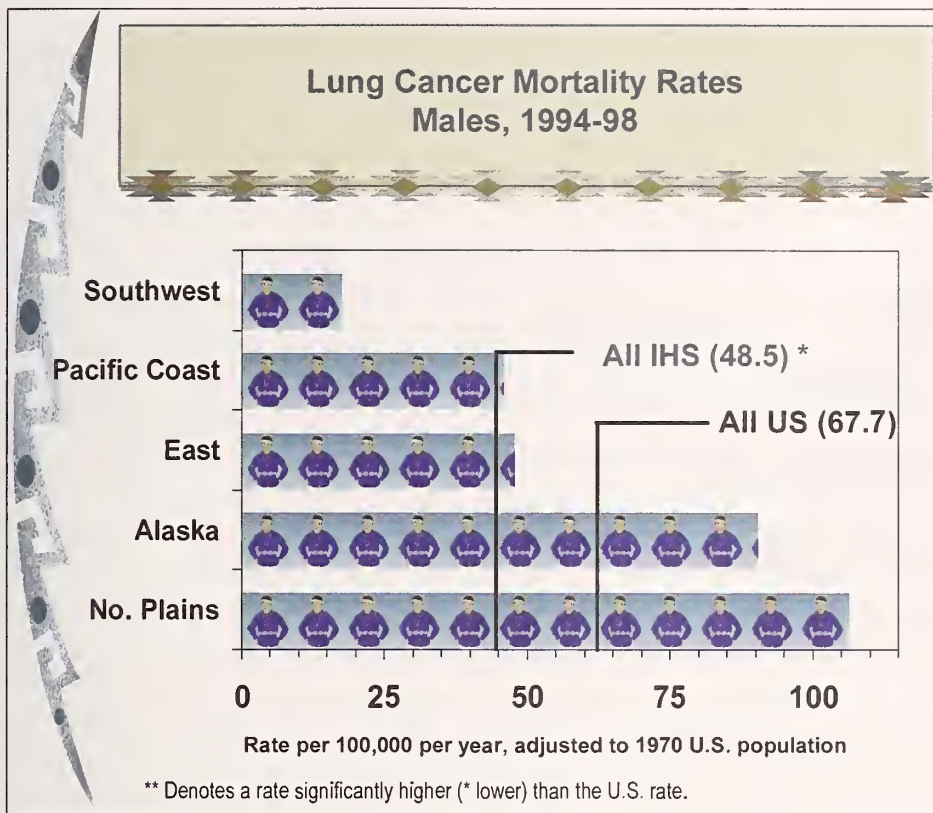
Table 9 lists the total number of deaths due to lung cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Lung Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		48.3		67.7		33.9
All IHS Regions	1485	33.7*	930	48.5*	555	22.3*
Alaska	174	62.8**	114	90.2**	60	40.2
East	420	30.4*	275	47.6*	145	18.0*
No. Plains	453	78.5**	264	106.4**	189	57.6**
Pacific Coast	289	33.2*	177	45.7*	112	23.6*
Southwest	149	11.5*	100	17.4*	49	6.9*

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 24



For males, the 1994 to 1998 age-adjusted cancer mortality rate for lung cancer is 48.5 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for males.

Looking at the rates regionally, the Northern Plains and Alaska regions have rates significantly higher than the U.S. rate. The Southwest, Pacific Coast, and East regions have rates significantly lower than the U.S. rates for males.

Figure 25

For females, the 1994 to 1998 age-adjusted cancer mortality rate for lung cancer is 22.3 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate for females.

Looking at the rates regionally, the Northern Plains and Alaska regions have rates significantly higher than the U.S. rate. The remaining three regions (Southwest, East, and Pacific Coast) have rates significantly lower than the U.S. rates for females.

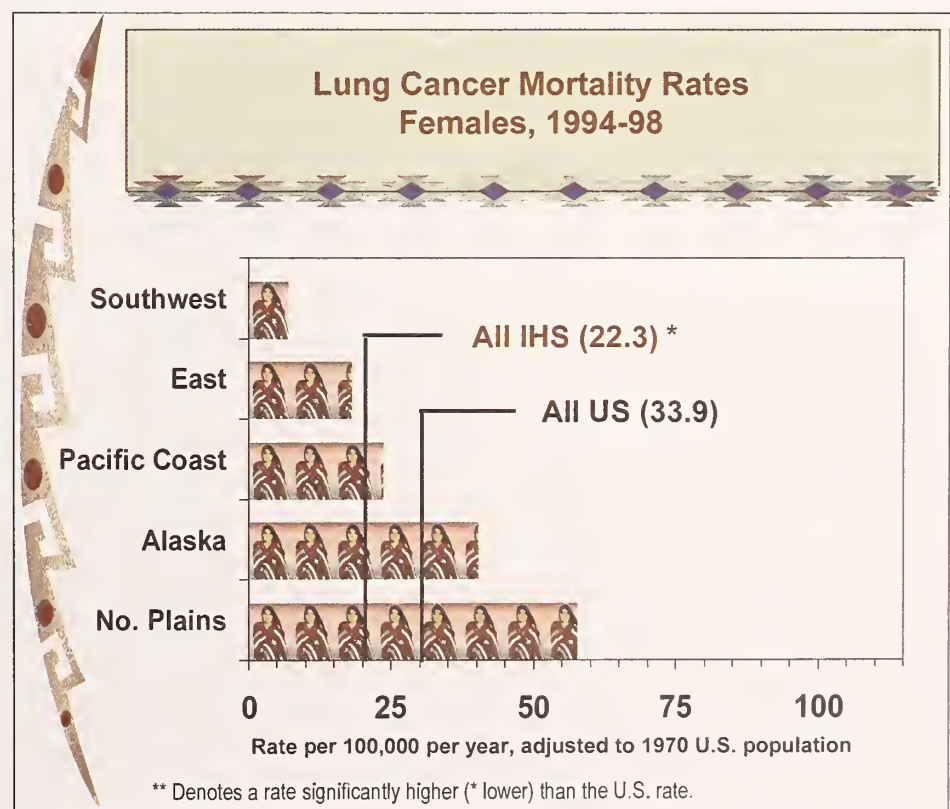
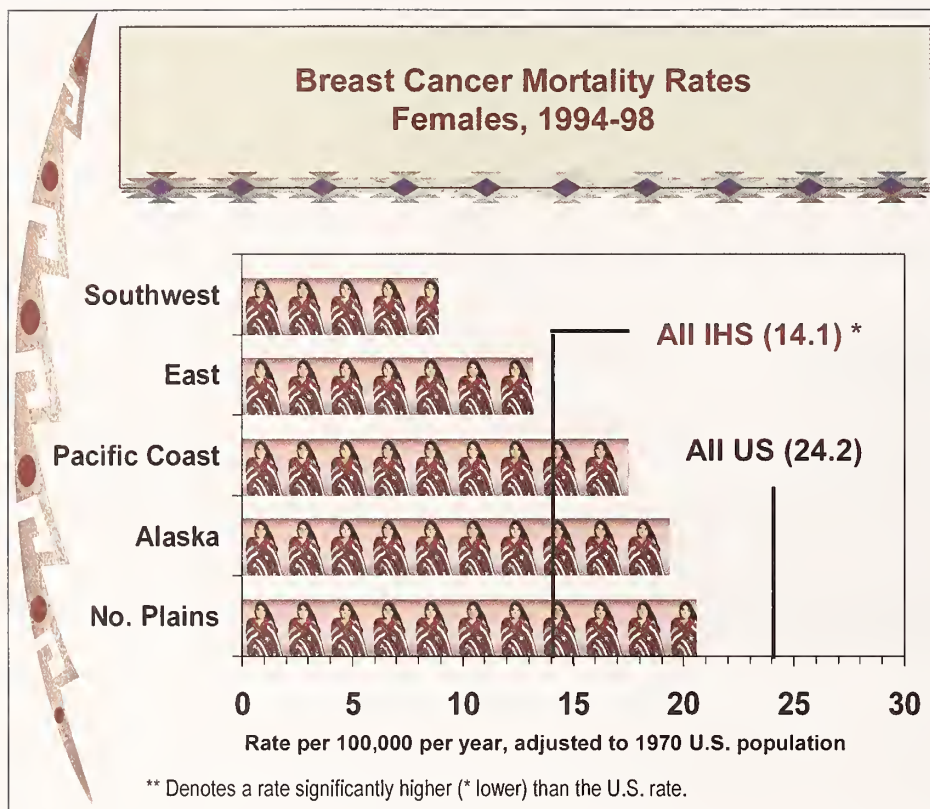


Figure 26




For females, the 1994 to 1998 age-adjusted cancer mortality rate for breast cancer is 14.1 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate.

Looking at the rates regionally, the Southwest, East, and Pacific Coast regions have rates significantly lower than the U.S. rate for females.

Table 10

Table 10 lists the total number of deaths due to breast cancer from 1994 to 1998 in addition to the mortality rate by IHS Area for both sexes combined, males, and females.

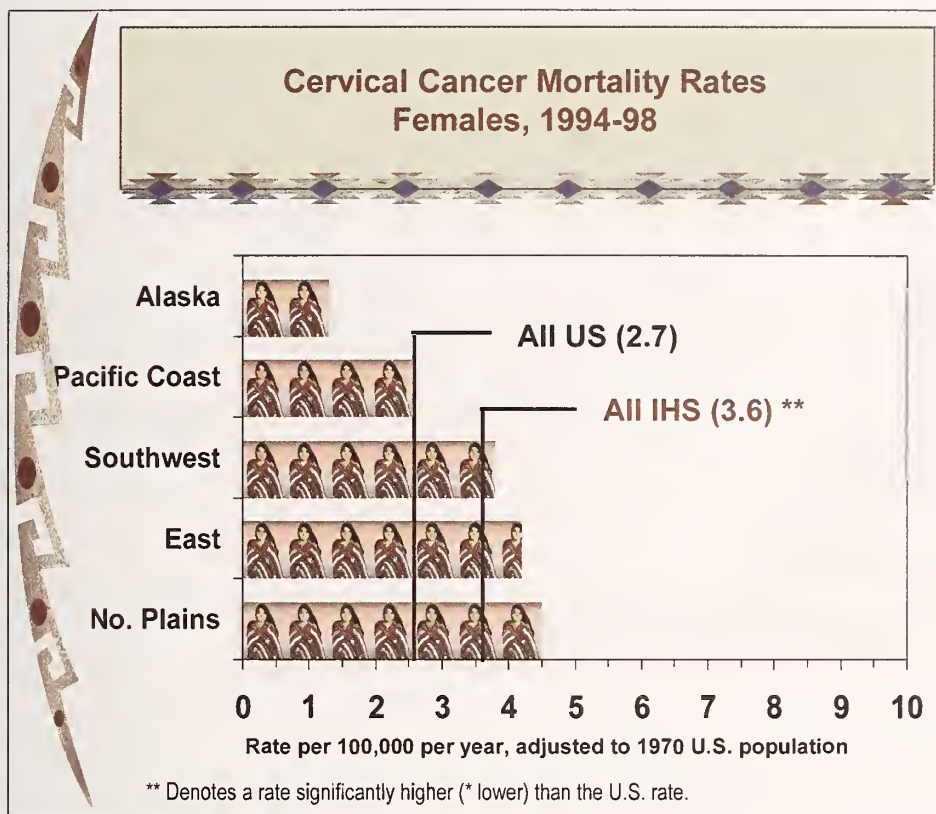
Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.



	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		13.5		0.3		24.2
All IHS Regions	386	7.8*	2	0.1	384	14.1**
Alaska	34	10.4	0	0.0	34	19.4
East	109	7.4*	1	0.2	108	13.2*
No. Plains	75	11.3	0	0.0	75	20.6
Pacific Coast	92	9.6*	0	0.0	92	17.5*
Southwest	76	5.0*	1	0.2	75	8.9*

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 27



For females, the 1994 to 1998 age-adjusted cancer mortality rate for cervical cancer is 3.6 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate.

Looking at the rates regionally, the Northern Plains and East regions have rates significantly higher than the U.S. rate for females.

Table 11

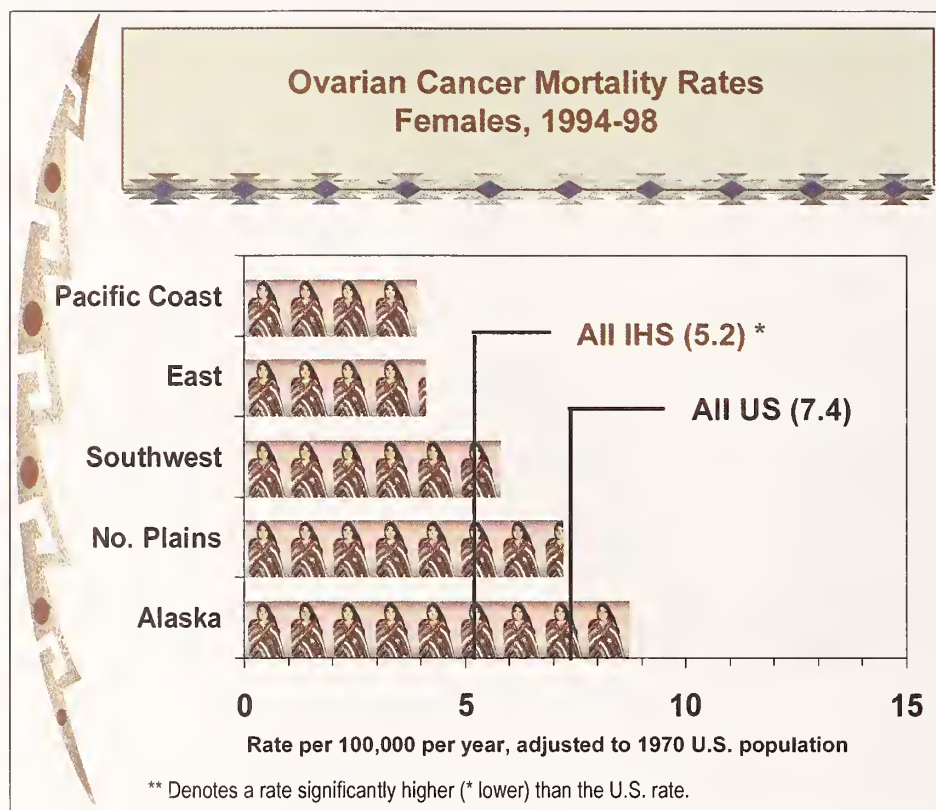
Table 11 lists the total number of deaths due to cervical cancer from 1994 to 1998 in addition to the mortality rate by IHS Area for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Cervical Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		1.4		0.0		2.7
All IHS Regions	108	2.0**	0	0.0	108	3.6**
Alaska	3	0.7	0	0.0	3	1.3
East	37	2.4**	0	0.0	37	4.2**
No. Plains	19	2.5**	0	0.0	19	4.5**
Pacific Coast	15	1.4	0	0.0	15	2.6
Southwest	34	2.1**	0	0.0	34	3.8

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 28



For females, the 1994 to 1998 age-adjusted cancer mortality rate for ovarian cancer is 5.2 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate.

Looking at the rates regionally, the Pacific Coast and East regions have rates significantly lower than the U.S. rate for females.

Table 12

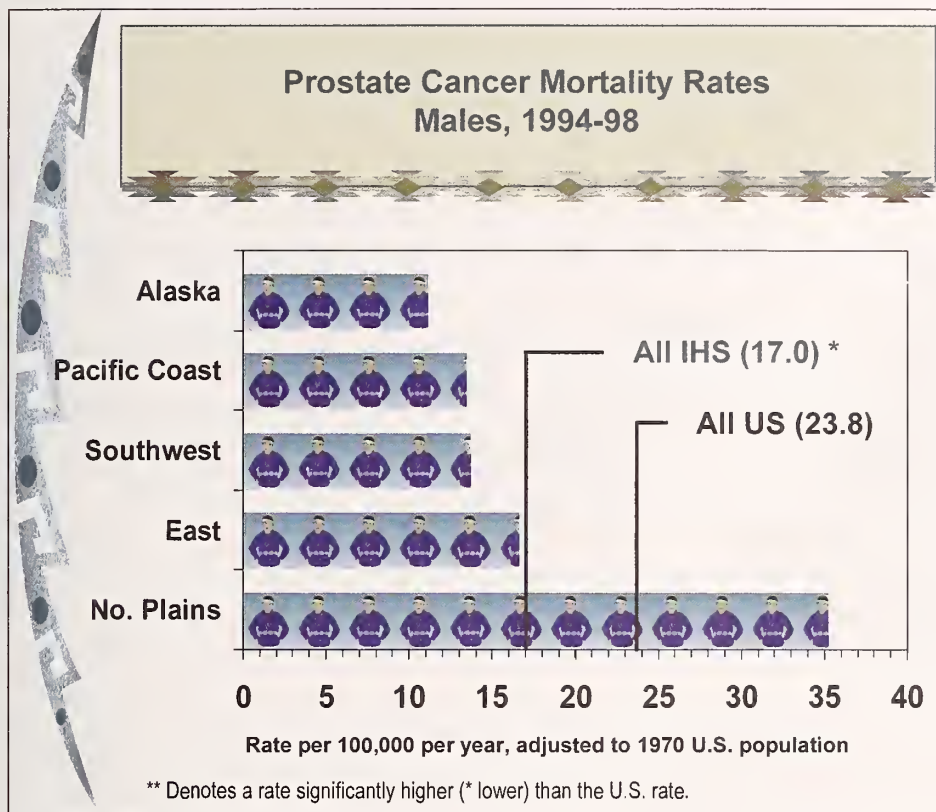
Table 12 lists the total number of deaths due to ovarian cancer from 1994 to 1998 in addition to the mortality rate by IHS Area for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Ovarian Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		4.2		0.0		7.4
All IHS Regions	142	2.9*	0	0.0	142	5.2*
Alaska	14	4.6	0	0.0	14	8.7
East	35	2.3*	0	0.0	35	4.1*
No. Plains	27	4.0	0	0.0	27	7.2
Pacific Coast	20	2.2*	0	0.0	20	3.9*
Southwest	46	3.2	0	0.0	46	5.8

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 29



For males, the 1994 to 1998 age-adjusted cancer mortality rate for prostate cancer is 17.0 per 100,000 over the entire IHS service population. Overall, this rate is significantly lower than the U.S. rate.

Looking at the rates regionally, the Northern Plains region has a rate significantly higher than the U.S. rate. The rest of the regions (Alaska, Pacific Coast, Southwest, and East) have rates significantly lower than the U.S. rate for males.

Table 13

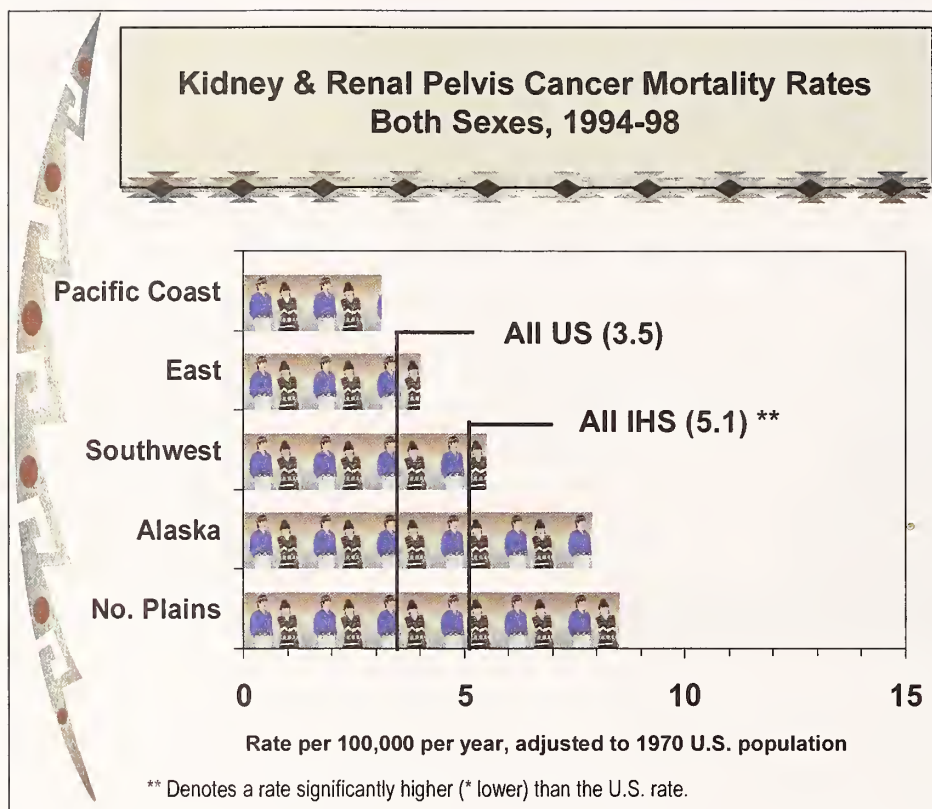
Table 13 lists the total number of deaths due to prostate cancer from 1994 to 1998 in addition to the mortality rate by IHS Area for both sexes combined, males, and females.

Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

Prostate Cancer Mortality Rates and Total Number of Deaths, 1994-98						
	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		9.4		23.8		0.0
All IHS Regions	289	6.9*	289	17.0*	0	0.0
Alaska	13	5.0*	13	11.1*	0	0.0
East	88	6.4*	88	16.6*	0	0.0
No. Plains	74	14.0**	74	35.2**	0	0.0
Pacific Coast	41	5.5*	41	13.4*	0	0.0
Southwest	73	5.9*	73	13.7*	0	0.0

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 30




For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for kidney & renal pelvis cancer is 5.1 per 100,000 over the entire IHS service population. This rate is significantly higher than the U.S. rate.

Looking at the rates regionally, the Northern Plains, Alaska, and Southwest regions were significantly higher than the U.S. rate for both sexes.

Table 14

Table 14 lists the total number of deaths due to kidney & renal pelvis cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

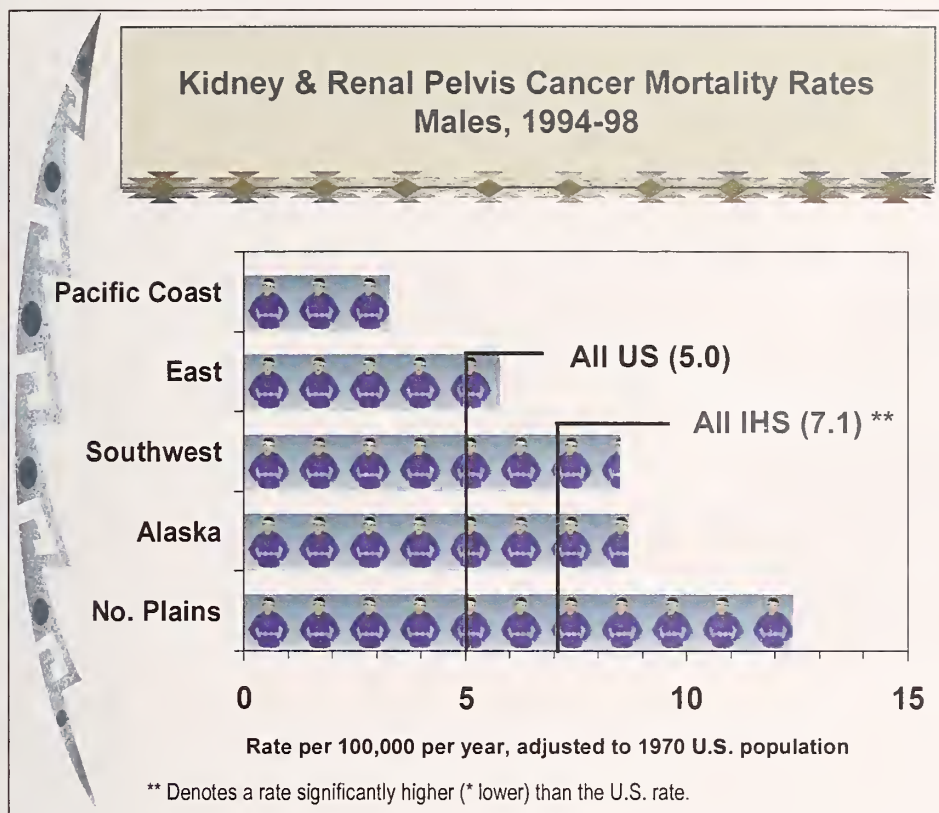
Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.



	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		3.5		5.0		2.3
All IHS Regions	235	5.1**	145	7.1**	90	3.5**
Alaska	21	7.9**	10	8.7	11	7.4**
East	57	4.0	36	5.8	21	2.6
No. Plains	49	8.5**	29	12.4**	20	6.0**
Pacific Coast	29	3.1	15	3.3	14	2.9
Southwest	79	5.5**	55	8.5**	24	3.1

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 31



For males, the 1994 to 1998 age-adjusted cancer mortality rate for all cancers is 7.1 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for males.

Looking at the rates regionally, the Northern Plains and Southwest regions have rates significantly higher than the U.S. rate.

Figure 32

For females, the 1994 to 1998 age-adjusted cancer mortality rate for kidney & renal pelvis cancer is 3.5 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for females.

Looking at the rates regionally, the Alaska and Northern Plains regions have rates significantly higher than the U.S. rate for females.

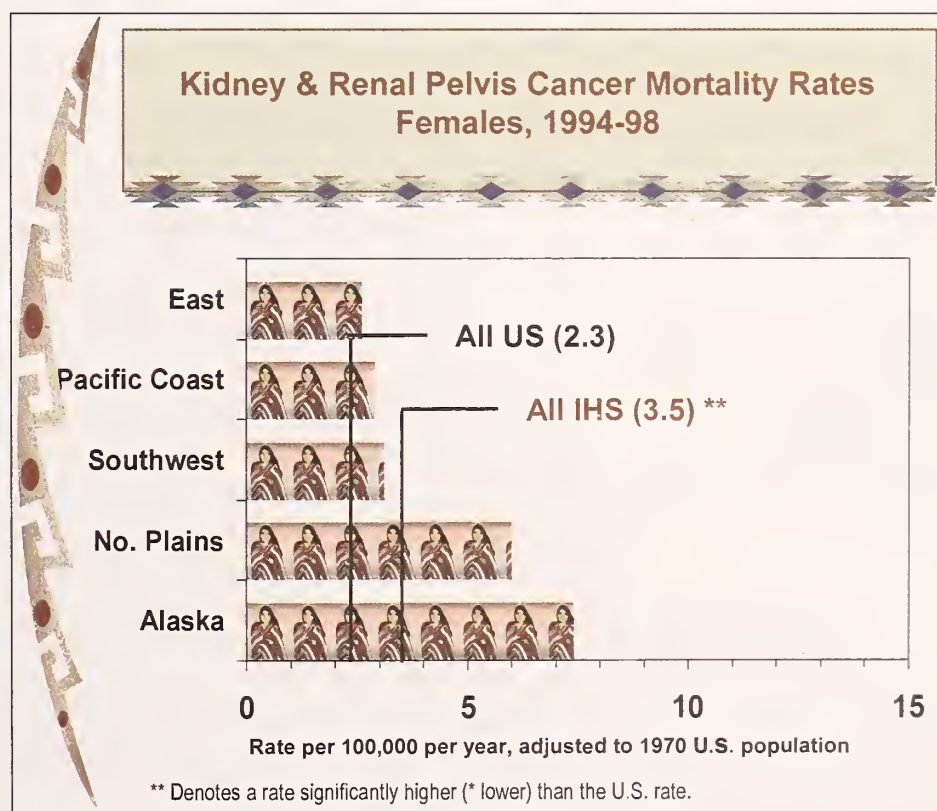
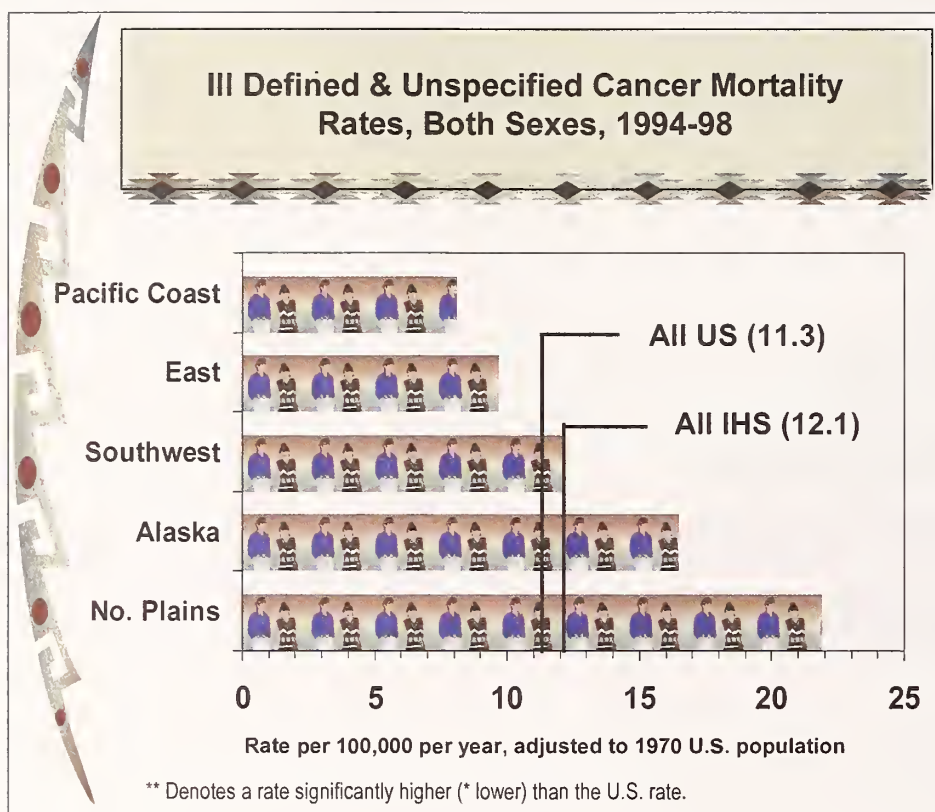


Figure 33



For both sexes combined, the 1994 to 1998 age-adjusted cancer mortality rate for ill defined & unspecified cancer is 12.1 per 100,000 over the entire IHS service population. This rate is not significantly different than the U.S. rate for both sexes.

Looking at the rates regionally, the Northern Plains and Alaska regions were significantly higher than the U.S. rate. The Pacific Coast region was significantly lower than the U.S. rate for both sexes.

Table 15

Table 15 lists the total number of deaths due to ill defined & unspecified cancer from 1994 to 1998 in addition to the mortality rate by IHS Region for both sexes combined, males, and females.

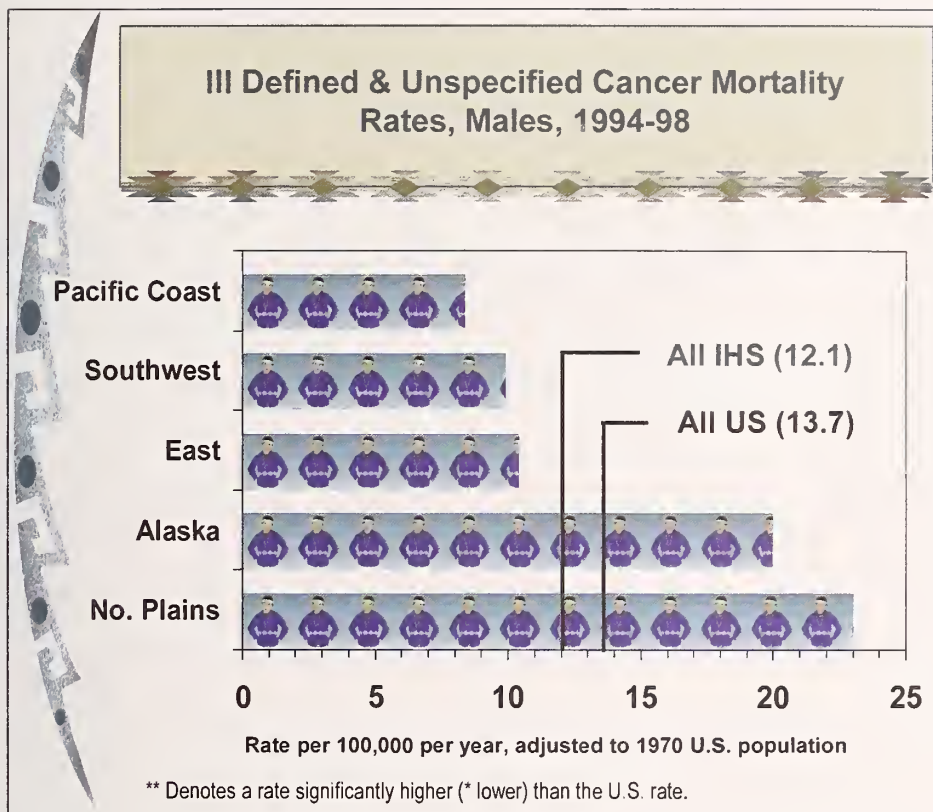
Mortality rates are calculated per 100,000 per year and are age-adjusted to the 1970 U.S. population. Rates based on small numbers of deaths should be interpreted with caution.

III Defined & Unspecified Cancer Mortality Rates and Total Number of Deaths, 1994-98

	Both Sexes		Males		Females	
	N	Rate	N	Rate	N	Rate
U.S. All Races		11.3		13.7		9.4
All IHS Regions	543	12.1	232	12.1	311	12.3**
Alaska	51	16.5**	29	20.0	22	13.4
East	137	9.7	60	10.4*	77	9.5
No. Plains	122	21.9**	52	23.0**	70	21.7**
Pacific Coast	70	8.1*	33	8.4*	37	8.0
Southwest	163	12.2	58	9.9*	105	14.1**

** Denotes a rate significantly higher (*lower) than the U.S. rate.

Figure 34



For males, the 1994 to 1998 age-adjusted cancer mortality rate for ill defined & unspecified cancer is 12.1 per 100,000 over the entire IHS service population. Overall, this rate is not significantly different than the U.S. rate for males.

Looking at the rates regionally, the Northern Plains region has a rate significantly higher than the U.S. rate. The Pacific Coast, Southwest, and East regions have rates significantly lower than the U.S. rates for males.

Figure 35

For females, the 1994 to 1998 age-adjusted cancer mortality rate for ill defined & unspecified cancers is 12.3 per 100,000 over the entire IHS service population. Overall, this rate is significantly higher than the U.S. rate for females.

Looking at the rates regionally, the Northern Plains and Southwest regions have rates significantly higher than the U.S. rate for females.

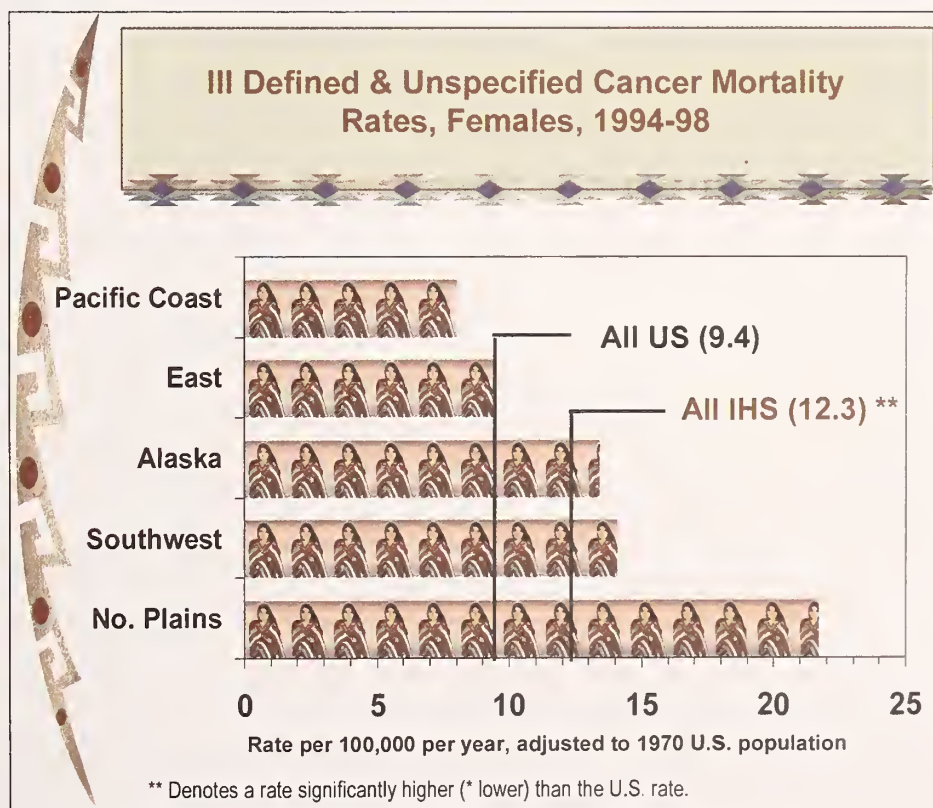


Table 16
Five Leading Causes of Cancer Mortality
 by Average Annual Age-Adjusted Rates*, 1994-1998, by Region and Sex,
 IHS Geographic Regions Compared to U.S. All Races

	Both Sexes		Males		Females	
	<u>Cancer Site</u>	<u>Rate</u>	<u>Cancer Site</u>	<u>Rate</u>	<u>Cancer Site</u>	<u>Rate</u>
US All Races	Lung	48.3	Lung	67.7	Lung	33.9
	Colon/Rectum	17.1	Prostate	23.8	Breast	24.2
	Breast	13.5	Colon/Rectum	20.5	Colon/Rectum	14.5
	Ill Defined/Unk.	11.3	Ill Defined/Unk.	13.7	Ill Defined/Unk.	9.4
	Prostate	9.4	Pancreas	9.7	Ovary	7.4
All IHS	Lung	33.7	Lung	48.5	Lung	22.3
	Colon/Rectum	14.1	Prostate	17.0	Breast	14.1
	Ill Defined/Unk.	12.1	Colon/Rectum	16.0	Colon/Rectum	12.5
	Breast	7.8	Ill Defined/Unk.	12.1	Ill Defined/Unk.	12.3
	Prostate	6.9	Stomach	8.2	Pancreas	5.4
Alaska	Lung	62.8	Lung	90.2	Lung	40.2
	Colon/Rectum	29.8	Colon/Rectum	25.0	Colon/Rectum	33.2
	Ill Defined/Unk.	16.5	Stomach	22.0	Breast	19.4
	Stomach	14.7	Ill Defined/Unk.	20.0	Ill Defined/Unk.	13.4
	Pancreas	11.8	Prostate	11.1	Pancreas	13.0
East	Lung	30.4	Lung	47.6	Lung	18.0
	Colon/Rectum	12.4	Prostate	16.6	Breast	13.2
	Ill Defined/Unk.	9.7	Colon/Rectum	14.8	Colon/Rectum	10.7
	Breast	7.4	Ill Defined/Unk.	10.4	Ill Defined/Unk.	9.5
	Prostate	6.4	Liver/Intrahep.	6.0	Pancreas	5.6
Northern Plains	Lung	78.5	Lung	106.4	Lung	57.6
	Colon/Rectum	27.1	Prostate	35.2	Colon/Rectum	22.5
	Ill Defined/Unk	21.9	Colon/Rectum	33.3	Ill Defined/Unk	21.7
	Prostate	14.0	Ill Defined/Unk.	23.0	Breast	20.6
	Breast	11.3	Pancreas	12.4	Ovary	7.2
			Kidney	12.4		
Pacific Coast	Lung	33.2	Lung	45.7	Lung	23.6
	Colon/Rectum	10.6	Prostate	13.4	Breast	17.5
	Breast	9.6	Colon/Rectum	12.7	Colon/Rectum	8.9
	Ill Defined/Unk.	8.1	Ill Defined/Unk.	8.4	Ill Defined/Unk.	8.0
	Prostate	5.5	Non-Hodgkin's	5.4	Ovary	3.9
					Non-Hodgkin's	3.9
Southwest	Ill Defined/Unk	12.2	Lung	17.4	Ill Defined/Unk.	14.1
	Lung	11.5	Prostate	13.7	Breast	8.9
	Colon/Rectum	9.3	Stomach	10.8	Colon/Rectum	8.5
	Liver	8.5	Liver/Intrahep.	10.7	Lung	6.9
	Stomach	8.1	Colon/Rectum	10.2	Liver/Intrahep	6.7

* All rates per 100,000 per year, adjusted to the 1970 U.S. standard population.



Table 17
All IHS Sites

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate
Oral Cavity & Pharynx									
Lip	102	2.2	2.6	70	3.4	3.9	32	1.3	1.5
Tongue	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Salivary Gland	14	0.3*	0.6	8	0.4*	0.9	6	0.2	0.3
Floor of mouth	10	0.2	0.2	6	0.3	0.3	4	0.2	0.1
Gingiva & other mouth	1	0.0	0.1	0	0.0	0.1	1	0.0	0.0
Tonsil	14	0.3	0.4	9	0.5	0.6	5	0.2	0.3
Nasopharynx	6	0.1	0.2	5	0.3	0.3	1	0.0	0.1
Oropharynx	28	0.6**	0.2	21	1.0**	0.3	7	0.3	0.1
Hypopharynx	9	0.2	0.2	6	0.3	0.3	3	0.1	0.1
Other oral cavity & pharynx	4	0.1	0.1	3	0.1	0.2	1	0.0	0.1
	16	0.3	0.5	12	0.6	0.8	4	0.2	0.3
Digestive System									
Esophagus	1684	36.9	38.5	884	44.3*	49.2	800	31.0	30.3
Stomach	107	2.4*	3.6	82	4.2*	6.3	25	1.0	1.5
Small intestine	291	6.1**	4.0	171	8.2**	5.7	120	4.4**	2.8
Colon & Rectum	10	0.2	0.3	4	0.2	0.4	6	0.2	0.3
Anus, anal canal & anorectum	642	14.1*	17.1	320	16.0*	20.5	322	12.5*	14.5
Liver & Intrahepatic ducts	2	0.0	0.1	2	0.1	0.1	0	0.0	0.1
Gallbladder	269	6.0**	3.6	152	7.7**	5.2	117	4.6**	2.3
Other biliary	61	1.4**	0.6	19	1.1**	0.4	42	1.6**	0.8
Pancreas	33	0.8**	0.5	13	0.7	0.6	20	0.8**	0.4
Other digestive system	255	5.7*	8.4	117	6.0*	9.7	138	5.4*	7.3
	14	0.3	0.4	4	0.2	0.3	10	0.4	0.4
Respiratory System									
Nose, Nasal cavity & middle ear	1554	35.3*	50.0	978	51.1*	70.7	576	23.2*	34.6
Larynx	9	0.2	0.1	4	0.2	0.2	5	0.2	0.1
Lung	52	1.2	1.3	40	2.1	2.3	12	0.5	0.5
Trachea & other respiratory system	1485	33.7*	48.3	930	48.5*	67.7	555	22.3*	33.9
	8	0.2	0.3	4	0.2	0.4	4	0.1	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 17 con't.
All IHS Sites

Number of Deaths and Cancer Mortality Rates
per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate
Bone & Joints	22	0.4	0.4	8	0.3	0.5	14	0.5	0.3
Soft Tissue (including heart)	48	0.9*	1.2	20	0.8*	1.3	28	1.0	1.2
Malignant Melanoma	31	0.6*	2.2	12	0.6*	3.2	19	0.6*	1.5
Breast	386	7.8*	13.5	2	0.1	0.3	384	14.1*	24.2
Female Genital System	328	6.6*	7.9	0	0.0	0.0	328	11.8*	14.1
Cervix uteri	108	2.0**	1.4	0	0.0	0.0	108	3.6**	2.7
Corpus uterus	35	0.7	1.0	0	0.0	0.0	35	1.3	1.7
Uterus, NOS	27	0.6*	0.9	0	0.0	0.0	27	1.1*	1.6
Ovary	142	2.9*	4.2	0	0.0	0.0	142	5.2*	7.4
Vagina	4	0.1	0.1	0	0.0	0.0	4	0.1	0.2
Vulva	8	0.2	0.2	0	0.0	0.0	8	0.3	0.3
Other female genital system	4	0.1	0.1	0	0.0	0.0	4	0.1	0.2
Male Genital System	302	7.1*	9.6	302	17.4*	24.2	0	0.0	0.0
Prostate	289	6.9*	9.4	289	17.0*	23.8	0	0.0	0.0
Testis	10	0.1	0.1	10	0.2	0.2	0	0.0	0.0
Penis	2	0.1	0.1	2	0.1	0.1	0	0.0	0.0
Other male genital system	1	0.0	0.0	1	0.1	0.0	0	0.0	0.0
Urinary System	288	6.3	6.9	176	8.7*	10.7	112	4.4	4.2
Urinary bladder	48	1.1*	3.3	27	1.4*	5.5	21	0.9*	1.8
Kidney & renal pelvis	235	5.1**	3.5	145	7.1**	5.0	90	3.5**	2.3
Ureter	5	0.1	0.1	4	0.2	0.1	1	0.0	0.1
Other urinary system	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 17 con't.
All IHS Sites

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate	All IHS N	Rate	US ^ Rate
Eye & Orbit	2	0.0	0.1	2	0.1	0.1	0	0.0	0.1
Brain & Nervous System	102	1.9*	4.1	59	2.3*	4.9	43	1.5*	3.4
Thyroid gland	12	0.3	0.3	3	0.2	0.3	9	0.4	0.4
Other endocrine (including thymus)	7	0.1*	0.3	5	0.2	0.3	2	0.1	0.2
Hodgkin's disease	15	0.2*	0.4	6	0.2*	0.5	9	0.2	0.4
Non-Hodgkin's	194	4.2*	6.9	103	5.1*	8.5	91	3.5*	5.7
Multiple Myeloma	132	3.0	3.1	60	3.1	3.8	72	2.9	2.6
Leukemias	200	3.7*	6.2	94	4.0*	8.2	106	3.5*	4.8
Lymphocytic:	52	0.9*	1.8	25	1.0*	2.5	27	0.9*	1.3
Acute lymphocytic	32	0.5	0.5	12	0.4	0.6	20	0.6	0.4
Chronic lymphocytic	16	0.4*	1.2	9	0.5*	1.8	7	0.3*	0.8
Other lymphocytic	4	0.1	0.1	4	0.2	0.1	0	0.0	0.1
Myeloid:	85	1.6*	2.7	42	1.8*	3.5	43	1.5*	2.2
Acute myeloid	58	1.1*	2.0	31	1.3*	2.4	27	0.9*	1.6
Chronic myeloid	26	0.5	0.7	11	0.5*	0.9	15	0.5	0.5
Other myeloid	1	0.0	0.1	0	0.0	0.1	1	0.0	0.1
Monocytic:	2	0.0	0.1	2	0.1	0.1	0	0.0	0.0
Acute monocytic	2	0.0	0.0	2	0.1	0.1	0	0.0	0.0
Chronic monocytic	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Other Leukemias	61	1.2*	1.6	25	1.2*	2.1	36	1.2	1.3
III-defined & Unspecified Sites	543	12.1	11.3	232	12.1	13.7	311	12.3**	9.4
All Sites	5952	129.4	165.7	3016	153.8	204.4	2936	112.1	138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 18

Alaska

Number of Deaths and Cancer Mortality Rates
per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate
Oral Cavity & Pharynx									
Lip	20	6.8**	2.6	16	11.9**	3.9	4	2.6	1.5
Tongue	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Salivary Gland	1	0.4	0.6	0	0.0	0.9	1	0.7	0.3
Floor of mouth	0	0.0	0.2	0	0.0	0.3	0	0.0	0.1
Gingiva & other mouth	1	0.3	0.1	0	0.0	0.1	1	0.7**	0.0
Tonsil	2	0.8	0.4	1	0.7	0.6	1	0.7	0.3
Nasopharynx	0	0.0	0.2	0	0.0	0.3	0	0.0	0.1
Oropharynx	12	4.1**	0.2	11	8.5**	0.3	1	0.5	0.1
Hypopharynx	0	0.0	0.2	0	0.0	0.3	0	0.0	0.1
Other oral cavity & pharynx	0	0.0	0.1	0	0.0	0.2	0	0.0	0.1
	4	1.2	0.5	4	2.7**	0.8	0	0.0	0.3
Digestive System									
Esophagus	209	70.7**	38.5	108	77.7**	49.2	101	64.3**	30.3
Stomach	18	6.6**	3.6	11	8.6	6.3	7	4.9**	1.5
Small intestine	51	14.7**	4.0	35	22.0**	5.7	16	8.1**	2.8
Colon & Rectum	0	0.0	0.3	0	0.0	0.4	0	0.0	0.3
Anus, anal canal & anorectum	83	29.8**	17.1	33	25.0	20.5	50	33.2**	14.5
Liver & Intrahepatic ducts	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Gallbladder	17	5.9	3.6	10	8.0	5.2	7	4.4	2.3
Other biliary	4	1.7**	0.6	3	2.9**	0.4	1	0.7	0.8
Pancreas	1	0.3	0.5	1	0.7	0.6	0	0.0	0.4
Other digestive system	35	11.8	8.4	15	10.5	9.7	20	13.0**	7.3
	0	0.0	0.4	0	0.0	0.3	0	0.0	0.4
Respiratory System									
Nose, Nasal cavity & middle ear	179	64.3**	50.0	119	93.4**	70.7	60	40.2	34.6
Larynx	0	0.0	0.1	0	0.0	0.2	0	0.0	0.1
Lung	5	1.5	1.3	5	3.2	2.3	0	0.0	0.5
Trachea & other respiratory system	174	62.8**	48.3	114	90.2**	67.7	60	40.2	33.9
	0	0.0	0.3	0	0.0	0.4	0	0.0	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 18 con't.

Alaska

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate
Bone & Joints	1	0.4	0.4	0	0.0	0.5	1	0.7	0.3
Soft Tissue (including heart)	3	1.0	1.2	1	0.8	1.3	2	1.3	1.2
Malignant Melanoma	3	0.9	2.2	1	0.3*	3.1	2	1.4	1.5
Breast	34	10.4	13.5	0	0.0	0.3	34	19.4	24.2
Female Genital System	17	5.2	7.9	0	0.0	0.0	17	10.0	14.1
Cervix uteri	3	0.7	1.4	0	0.0	0.0	3	1.3	2.7
Corpus uteris	0	0.0	1.0	0	0.0	0.0	0	0.0	1.7
Uterus, NOS	0	0.0	0.9	0	0.0	0.0	0	0.0	1.6
Ovary	14	4.6	4.2	0	0.0	0.0	14	8.7	7.4
Vagina	0	0.0	0.1	0	0.0	0.0	0	0.0	0.2
Vulva	0	0.0	0.2	0	0.0	0.0	0	0.0	0.3
Other female genital system	0	0.0	0.1	0	0.0	0.0	0	0.0	0.2
Male Genital System	13	5.0*	9.6	13	11.1*	24.2	0	0.0	0.0
Prostate	13	5.0*	9.4	13	11.1*	23.4	0	0.0	0.0
Testis	0	0.0	0.1	0	0.0	0.2	0	0.0	0.0
Penis	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Other male genital system	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Urinary System	26	9.9	6.9	13	11.3	10.5	13	8.9**	4.2
Urinary bladder	4	1.7	3.3	2	1.8	5.4	2	1.5	1.8
Kidney & renal pelvis	21	7.9**	3.5	10	8.7	5.0	11	7.4**	2.3
Ureter	1	0.4	0.1	1	0.8	0.1	0	0.0	0.1
Other urinary system	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 18 con't.

Alaska

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate	Alaska N	Rate	US ^ Rate
Eye & Orbit	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Brain & Nervous System	5	1.2*	4.1	3	1.8	5.0	2	0.6*	3.4
Thyroid gland	0	0.0	0.3	0	0.0	0.3	0	0.0	0.4
Other endocrine (including thymus)	1	0.2	0.3	1	0.3	0.3	0	0.0	0.2
Hodgkin's disease	0	0.0	0.4	0	0.0	0.5	0	0.0	0.4
Non-Hodgkin's	12	4.0	6.9	8	5.8	8.5	4	2.4	5.7
Multiple Myeloma	6	1.9	3.1	2	1.1	3.8	4	2.7	2.6
Leukemias	13	3.2*	6.3	7	4.6	8.2	6	2.2	4.8
Lymphocytic:	3	0.5*	1.8	1	0.4	2.5	2	0.6	1.3
Acute lymphocytic	3	0.5	0.5	1	0.4	0.6	2	0.6	0.4
Chronic lymphocytic	0	0.0	1.2	0	0.0	1.8	0	0.0	0.8
Other lymphocytic	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Myeloid:	5	1.2	2.7	3	2.0	3.5	2	0.6	2.2
Acute myeloid	4	1.1	2.0	3	2.0	2.4	1	0.3	1.6
Chronic myeloid	1	0.2	0.7	0	0.0	0.9	1	0.3	0.5
Other myeloid	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Monocytic:	1	0.2	0.1	1	0.3	0.1	0	0.0	0.0
Acute monocytic	1	0.2	0.1	1	0.3	0.1	0	0.0	0.0
Chronic monocytic	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Other Leukemias	4	1.3	1.6	2	1.8	2.1	2	1.0	1.3
III-defined & Unspecified Sites	51	16.5**	11.3	29	20.0	13.7	22	13.4	9.4
All Sites	593	201.5**	165.7	321	239.9**	204.4	272	170.1**	138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 19

East

Number of Deaths and Cancer Mortality Rates

per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	East			East			East		
	N	Rate	US ^	N	Rate	US ^	N	Rate	US ^
Oral Cavity & Pharynx	28	2.0	2.6	20	3.2	3.9	8	1.0	1.5
Lip	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Tongue	7	0.5	0.6	5	0.8	0.9	2	0.3	0.3
Salivary Gland	3	0.2	0.2	2	0.3	0.3	1	0.1	0.1
Floor of mouth	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Gingiva & other mouth	3	0.2	0.4	2	0.4	0.6	1	0.1	0.3
Tonsil	4	0.3	0.2	3	0.5	0.3	1	0.1	0.1
Nasopharynx	2	0.1	0.2	1	0.1	0.3	1	0.1	0.1
Oropharynx	4	0.3	0.2	3	0.4	0.3	1	0.1	0.1
Hypopharynx	1	0.1	0.1	1	0.2	0.2	0	0.0	0.1
Other oral cavity & pharynx	4	0.3	0.5	3	0.5	0.8	1	0.1	0.3
Digestive System	406	28.8*	38.5	209	35.2*	49.2	197	24.0*	30.3
Esophagus	28	2.0*	3.6	24	4.0*	6.3	4	0.5*	1.5
Stomach	46	3.3	4.0	28	4.8	5.7	18	2.2	2.8
Small intestine	2	0.1	0.3	0	0.0	0.4	2	0.2	0.3
Colon & Rectum	176	12.4*	17.1	89	14.8*	20.5	87	10.7*	14.5
Anus, anal canal & anorectum	1	0.1	0.1	1	0.2	0.1	0	0.0	0.1
Liver & Intrahepatic ducts	63	4.4	3.6	36	6.0	5.2	27	3.2	2.3
Gallbladder	12	0.9	0.6	4	0.7	0.4	8	0.9	0.8
Other biliary	3	0.2	0.5	2	0.2	0.6	1	0.1	0.4
Pancreas	71	5.1*	8.4	25	4.5*	9.7	46	5.6	7.3
Other digestive system	4	0.3	0.4	0	0.0	0.3	4	0.5	0.4
Respiratory System	438	31.8*	50.0	288	49.9*	70.7	150	18.6*	34.6
Nose, Nasal cavity & middle ear	1	0.1	0.1	1	0.2	0.2	0	0.0	0.1
Larynx	17	1.3	1.3	12	2.1	2.3	5	0.6	0.5
Lung	420	30.4*	48.3	275	47.6*	67.7	145	18.0*	33.9
Trachea & other respiratory system	0	0.0	0.3	0	0.0	0.4	0	0.0	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 19 con't.
East

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Rate	US ^	N	Rate	US ^	N	Rate	US ^
Bone & Joints	6	0.4	0.4	4	0.5	0.5	2	0.2	0.3
Soft Tissue (including heart)	13	0.8	1.2	5	0.8	1.3	8	0.9	1.2
Malignant Melanoma	12	0.8*	2.2	4	0.6*	3.2	8	0.9	1.5
Breast	109	7.4*	13.5	1	0.2	0.3	108	13.2*	24.2
Female Genital System	96	6.3*	7.9	0	0.0	0.0	96	11.2*	14.1
Cervix uteri	37	2.4**	1.4	0	0.0	0.0	37	4.2**	2.7
Corpus uteri	7	0.5	1.0	0	0.0	0.0	7	0.8	1.7
Uterus, NOS	11	0.8	0.9	0	0.0	0.0	11	1.4	1.6
Ovary	35	2.3*	4.2	0	0.0	0.0	35	4.1*	7.4
Vagina	2	0.1	0.1	0	0.0	0.0	2	0.2	0.2
Vulva	4	0.3	0.2	0	0.0	0.0	4	0.4	0.3
Other female genital system	0	0.0	0.1	0	0.0	0.0	0	0.0	0.2
Male Genital System	91	6.6*	9.6	91	16.9*	24.2	0	0.0	0.0
Prostate	88	6.4*	9.4	88	16.6*	23.8	0	0.0	0.0
Testis	2	0.1	0.1	2	0.2	0.2	0	0.0	0.0
Penis	1	0.1	0.1	1	0.2	0.1	0	0.0	0.0
Other male genital system	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Urinary System	73	5.2*	6.9	43	7.1*	10.7	30	3.8	4.2
Urinary bladder	15	1.1*	3.3	6	1.1*	5.5	9	1.2	1.8
Kidney & renal pelvis	57	4.0	3.5	36	5.8	5.0	21	2.6	2.3
Ureter	1	0.1	0.1	1	0.2	0.1	0	0.0	0.1
Other urinary system	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 19 con't.
East

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	East N	Rate	US ^ Rate	East N	Rate	US ^ Rate	East N	Rate	US ^ Rate
Eye & Orbit	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Brain & Nervous System	27	1.8*	4.1	14	2.0*	4.9	13	1.6*	3.4
Thyroid gland	4	0.3	0.3	1	0.1	0.3	3	0.4	0.4
Other endocrine (including thymus)	1	0.0	0.3	1	0.1	0.3	0	0.0	0.2
Hodgkin's disease	5	0.2	0.4	2	0.2	0.5	3	0.3	0.4
Non-Hodgkin's	62	4.3*	6.9	30	4.8*	8.5	32	3.9*	5.7
Multiple Myeloma	33	2.4	3.1	12	2.1*	3.8	21	2.5	2.6
Leukemias	61	4.0*	6.2	26	3.7*	8.2	35	4.2	4.8
Lymphocytic:	19	1.2	1.8	8	1.1*	2.5	11	1.3	1.3
Acute lymphocytic	12	0.7	0.5	5	0.6	0.6	7	0.8	0.4
Chronic lymphocytic	7	0.5*	1.2	3	0.5*	1.8	4	0.5	0.8
Other lymphocytic	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Myeloid:	25	1.6*	2.7	11	1.6*	3.5	14	1.7	2.2
Acute myeloid	18	1.2*	2.0	8	1.1	2.4	10	1.3	1.6
Chronic myeloid	7	0.4	0.7	3	0.4	0.9	4	0.5	0.5
Other myeloid	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Monocytic:	1	0.1	0.1	1	0.2	0.1	0	0.0	0.0
Acute monocytic	1	0.1	0.0	1	0.2	0.1	0	0.0	0.0
Chronic monocytic	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Other Leukemias	16	1.1	1.6	6	0.9*	2.1	10	1.2	1.3
Ill-defined & Unspecified Sites	137	9.7	11.3	60	10.4*	13.7	77	9.5	9.4
All Sites	1602	112.6*	165.7	811	137.8*	204.4	791	96.3*	138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.

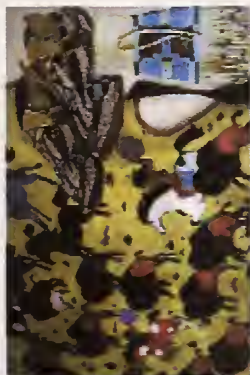


Table 20
Northern Plains

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Rate	US ^	N	Rate	US ^	N	Rate	US ^
Oral Cavity & Pharynx									
Lip	23	3.8	2.6	15	5.5	3.9	8	2.5	1.5
Tongue	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Salivary Gland	5	0.9	0.6	3	1.1	0.9	2	0.7	0.3
Floor of mouth	3	0.5	0.2	1	0.4	0.3	2	0.6**	0.1
Gingiva & other mouth	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Tonsil	4	0.7	0.4	3	1.2	0.6	1	0.3	0.3
Nasopharynx	1	0.2	0.2	1	0.3	0.3	1	0.3	0.1
Oropharynx	3	0.5	0.2	3	1.2**	0.3	0	0.0	0.1
Hypopharynx	3	0.5	0.2	2	0.6	0.3	0	0.0	0.1
Other oral cavity & pharynx	2	0.3	0.1	2	0.7	0.2	0	0.0	0.1
	2	0.3	0.5	0	0.0	0.8	2	0.6	0.3
Digestive System									
Esophagus	343	57.3**	38.5	187	71.3**	49.2	156	46.3**	30.3
Stomach	20	3.4	3.6	14	5.2	6.3	6	1.8	1.5
Small intestine	45	6.8**	4.0	23	8.0	5.7	22	5.9**	2.8
Colon & Rectum	1	0.1	0.3	0	0.0	0.4	1	0.2	0.3
Anus, anal canal & anorectum	160	27.1**	17.1	85	33.3**	20.5	75	22.5**	14.5
Liver & Intrahepatic ducts	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Gallbladder	45	7.5**	3.6	28	10.4**	5.2	17	5.2**	2.3
Other biliary	13	2.2**	0.6	3	1.1	0.4	10	3.1**	0.8
Pancreas	7	1.2**	0.5	2	1.0	0.6	5	1.5**	0.4
Other digestive system	49	8.3	8.4	32	12.4	9.7	17	5.1	7.3
	3	0.6	0.4	0	0.0	0.3	3	1.0	0.4
Respiratory System									
Nose, Nasal cavity & middle ear	469	81.2**	50.0	275	111.0**	70.7	194	58.9**	34.6
Larynx	0	0.0	0.1	0	0.0	0.2	0	0.0	0.1
Lung	13	2.2	1.3	10	4.2	2.3	3	0.9	0.5
Trachea & other respiratory system	453	78.5**	48.3	264	106.4**	67.7	189	57.6**	33.9
	3	0.4	0.3	1	0.4	0.4	2	0.4	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.

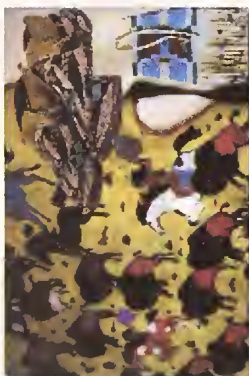


Table 20 con't.
Northern Plains

Number of Deaths and Cancer Mortality Rates
per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Rate	US ^ Rate	N	Rate	US ^ Rate	N	Rate	US ^ Rate
Bone & Joints	4	0.6	0.4	0	0.0	0.5	4	1.1**	0.3
Soft Tissue (including heart)	10	1.2	1.2	3	0.6	1.3	7	1.6	1.2
Malignant Melanoma	5	0.7*	2.2	2	1.0	3.2	3	0.6	1.5
Breast	75	11.3	13.5	0	0.0	0.3	75	20.6	24.2
Female Genital System	64	9.1	7.9	0	0.0	0.0	64	16.3	14.1
Cervix uteri	19	2.5**	1.4	0	0.0	0.0	19	4.5**	2.7
Corpus uterus	10	1.5	1.0	0	0.0	0.0	10	2.6	1.7
Uterus, NOS	5	0.8	0.9	0	0.0	0.0	5	1.4	1.6
Ovary	27	4.0	4.2	0	0.0	0.0	27	7.2	7.4
Vagina	1	0.2	0.1	0	0.0	0.0	1	0.3	0.2
Vulva	0	0.0	0.2	0	0.0	0.0	0	0.0	0.3
Other female genital system	2	0.2	0.1	0	0.0	0.0	2	0.3	0.2
Male Genital System	76	14.3**	9.6	76	35.9**	24.2	0	0.0	0.0
Prostate	74	14.0**	9.4	74	35.2**	23.8	0	0.0	0.0
Testis	1	0.1	0.1	1	0.2	0.2	0	0.0	0.0
Penis	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Other male genital system	1	0.2**	0.0	1	0.5**	0.0	0	0.0	0.0
Urinary System	65	11.4**	6.9	39	16.4**	10.7	26	7.9**	4.2
Urinary bladder	13	2.3	3.3	8	3.2	5.5	5	1.6	1.8
Kidney & renal pelvis	49	8.5**	3.5	29	12.4**	5.0	20	6.0**	2.3
Ureter	3	0.5**	0.1	2	0.7**	0.1	1	0.3	0.1
Other urinary system	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.

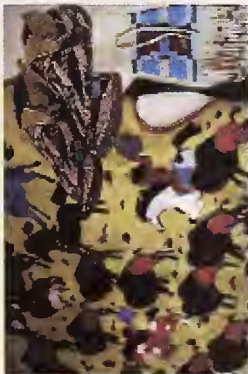


Table 20 con't.
Northern Plains

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	<u>Both Sexes</u>		<u>Males</u>		<u>Females</u>	
	N	Rate	N	Rate	N	Rate
Eye & Orbit	0	0.0	0	0.0	0	0.0
Brain & Nervous System	23	3.0	13	3.8	10	2.4
Thyroid gland	1	0.2	0	0.0	1	0.3
Other endocrine (including thymus)	1	0.2	1	0.3	0	0.0
Hodgkin's disease	4	0.4	1	0.2	3	0.5
Non-Hodgkin's	38	6.1	17	6.5	21	5.9
Multiple Myeloma	23	3.9	9	3.5	14	4.3
Leukemias	37	5.6	22	8.4	15	3.8
Lymphocytic:	11	1.7	7	2.7	4	1.0
Acute lymphocytic	3	0.4	2	0.6	1	0.2
Chronic lymphocytic	5	0.9	2	1.1	3	0.8
Other lymphocytic	3	0.4**	3	1.0**	0	0.0
Myeloid:	8	1.1*	6	2.1	2	0.4*
Acute myeloid	7	1.0	5	1.8	2	0.4
Chronic myeloid	1	0.2	1	0.3	0	0.0
Other myeloid	0	0.0	0	0.0	0	0.0
Monocytic:	0	0.0	0	0.0	0	0.0
Acute monocytic	0	0.0	0	0.0	0	0.0
Chronic monocytic	0	0.0	0	0.0	0	0.0
Other Leukemias	18	2.8**	9	3.6	9	2.4
Ill-defined & Unspecified Sites	122	21.9**	52	23.0**	70	21.7**
All Sites	1383	232.1**	712	287.4**	671	194.8**
		165.7		204.4		138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 21

Pacific Coast

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Pacific Rate	US ^ Rate	N	Pacific Rate	US ^ Rate	N	Pacific Rate	US ^ Rate
Oral Cavity & Pharynx									
Lip	14	1.5*	2.6	8	1.6*	3.9	6	1.2	1.5
Tongue	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Salivary Gland	1	0.1	0.6	0	0.0	0.9	1	0.2	0.3
Floor of mouth	1	0.1	0.2	1	0.2	0.3	0	0.0	0.1
Gingiva & other mouth	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Tonsil	3	0.2	0.4	2	0.4	0.6	1	0.1	0.3
Nasopharynx	1	0.1	0.2	1	0.3	0.3	0	0.0	0.1
Oropharynx	4	0.4	0.2	2	0.4	0.3	2	0.4	0.1
Hypopharynx	1	0.1	0.2	0	0.0	0.3	1	0.2	0.1
Other oral cavity & pharynx	0	0.0	0.1	0	0.0	0.2	0	0.0	0.1
	3	0.3	0.5	2	0.4	0.8	1	0.2	0.3
Digestive System									
Esophagus	228	25.0*	38.5	119	29.6*	49.2	109	21.3*	30.3
Stomach	22	2.4	3.6	18	4.6	6.3	4	0.7	1.5
Small intestine	36	3.8	4.0	20	4.4	5.7	16	3.2	2.8
Colon & Rectum	3	0.3	0.3	1	0.2	0.4	2	0.3	0.3
Anus, anal canal & anorectum	94	10.6*	17.1	49	12.7*	20.5	45	8.9*	14.5
Liver & Intrahepatic ducts	1	0.1	0.1	1	0.1	0.1	0	0.0	0.1
Gallbladder	32	3.6	3.6	16	4.1	5.2	16	3.2	2.3
Other biliary	3	0.3	0.6	1	0.2	0.4	2	0.3	0.8
Pancreas	5	0.7	0.5	1	0.4	0.6	4	0.9	0.4
Other digestive system	31	3.1*	8.4	12	2.7*	9.7	19	3.4*	7.3
	1	0.1	0.4	0	0.0	0.3	1	0.2	0.4
Respiratory System									
Nose, Nasal cavity & middle ear	306	35.3*	50.0	189	49.1*	70.7	117	24.7*	34.6
Larynx	3	0.3	0.1	2	0.6	0.2	1	0.1	0.1
Lung	11	1.3	1.3	8	2.2	2.3	3	0.7	0.5
Trachea & other respiratory system	289	33.2*	48.3	177	45.7*	67.7	112	23.6*	33.9
	3	0.4	0.3	2	0.6	0.4	1	0.2	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 21 con't.
Pacific Coast

Number of Deaths and Cancer Mortality Rates
per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Rate	US ^	N	Rate	US ^	N	Rate	US ^
Bone & Joints	2	0.2	0.4	1	0.1	0.5	1	0.2	0.3
Soft Tissue (including heart)	10	1.0	1.2	4	0.8	1.3	6	1.1	1.2
Malignant Melanoma	2	0.2*	2.2	1	0.2*	3.2	1	0.1*	1.5
Breast	92	9.6*	13.5	0	0.0	0.3	92	17.5*	24.2
Female Genital System	45	5.1*	7.9	0	0.0	0.0	45	8.8*	14.1
Cervix uteri	15	1.4	1.4	0	0.0	0.0	15	2.6	2.7
Corpus uteri	2	0.3	1.0	0	0.0	0.0	2	0.5	1.7
Uterus, NOS	6	0.8	0.9	0	0.0	0.0	6	1.4	1.6
Ovary	20	2.2*	4.2	0	0.0	0.0	20	3.9*	7.4
Vagina	0	0.0	0.1	0	0.0	0.0	0	0.0	0.2
Vulva	2	0.3	0.2	0	0.0	0.0	2	0.5	0.3
Other female genital system	0	0.0	0.1	0	0.0	0.0	0	0.0	0.2
Male Genital System	42	5.5*	9.6	42	13.5*	24.2	0	0.0	0.0
Prostate	41	5.5*	9.4	41	13.4*	23.8	0	0.0	0.0
Testis	1	0.0	0.1	1	0.1	0.2	0	0.0	0.0
Penis	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Other male genital system	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Urinary System	35	3.7*	6.9	20	4.5*	10.7	15	3.1	4.2
Urinary bladder	6	0.6*	3.3	5	1.2*	5.5	1	0.2*	1.8
Kidney & renal pelvis	29	3.1	3.5	15	3.3	5.0	14	2.9	2.3
Ureter	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Other urinary system	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 21 con't.
Pacific Coast

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	N	Rate	US ^	N	Rate	US ^	N	Rate	US ^
Eye & Orbit	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Brain & Nervous System	24	2.0*	4.1	14	2.8*	4.9	10	1.5*	3.4
Thyroid gland	2	0.2	0.3	0	0.0	0.3	2	0.4	0.4
Other endocrine (including thymus)	2	0.1	0.3	1	0.1	0.3	1	0.1	0.2
Hodgkin's disease	3	0.1	0.4	2	0.2	0.5	1	0.1	0.4
Non-Hodgkin's	39	4.4*	6.9	19	5.4	8.5	20	3.9	5.7
Multiple Myeloma	20	2.4	3.1	7	1.7*	3.8	13	2.9	2.6
Leukemias	34	3.2*	6.2	19	3.9*	8.2	15	2.6*	4.8
Lymphocytic:	5	0.4*	1.8	3	0.5*	2.5	2	0.3	1.3
Acute lymphocytic	2	0.2	0.5	0	0.0	0.6	2	0.3	0.4
Chronic lymphocytic	2	0.2*	1.2	2	0.4	1.8	0	0.0	0.8
Other lymphocytic	1	0.1	0.1	1	0.1	0.1	0	0.0	0.1
Myeloid:	23	2.3	2.7	13	2.9	3.5	10	1.8	2.2
Acute myeloid	13	1.4	2.0	7	1.7	2.4	6	1.1	1.6
Chronic myeloid	10	0.9	0.7	6	1.2	0.9	4	0.7	0.5
Other myeloid	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Monocytic:	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Acute monocytic	0	0.0	0.0	0	0.0	0.1	0	0.0	0.0
Chronic monocytic	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Other Leukemias	6	0.5*	1.6	3	0.5*	2.1	3	0.5	1.3
III-defined & Unspecified Sites	70	8.1*	11.3	33	8.4*	13.7	37	8.0	9.4
All Sites	970	107.7*	165.7	479	122.0*	204.4	491	97.7*	138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 22
Southwest

Number of Deaths and Cancer Mortality Rates
per 100,000 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes			Males			Females		
	Southwest N	Southwest Rate	US ^ Rate	Southwest N	Southwest Rate	US ^ Rate	Southwest N	Southwest Rate	US ^ Rate
Oral Cavity & Pharynx									
Lip	17	1.2*	2.6	11	1.8*	3.9	6	0.7	1.5
Tongue	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Salivary Gland	0	0.0	0.6	0	0.0	0.9	0	0.0	0.3
Floor of mouth	3	0.2	0.2	2	0.4	0.3	1	0.2	0.1
Gingiva & other mouth	0	0.0	0.1	0	0.0	0.1	0	0.0	0.0
Tonsil	2	0.1	0.4	1	0.2	0.6	1	0.1	0.3
Nasopharynx	0	0.0	0.2	0	0.0	0.3	0	0.0	0.1
Oropharynx	7	0.5**	0.2	4	0.6	0.3	3	0.4	0.1
Hypopharynx	1	0.1	0.2	1	0.2	0.3	0	0.0	0.1
Other oral cavity & pharynx	1	0.1	0.1	0	0.0	0.2	1	0.1	0.1
	3	0.2	0.5	3	0.4	0.8	0	0.0	0.3
Digestive System									
Esophagus	498	36.9	38.5	261	44.1	49.2	237	31.2	30.3
Stomach	19	1.5*	3.6	15	2.7*	6.3	4	0.5*	1.5
Small intestine	113	8.1**	4.0	65	10.8**	5.7	48	6.1**	2.8
Colon & Rectum	4	0.3	0.3	3	0.4	0.4	1	0.1	0.3
Anus, anal canal & anorectum	129	9.3*	17.1	64	10.2*	20.5	65	8.5*	14.5
Liver & Intrahepatic ducts	0	0.0	0.1	0	0.0	0.1	0	0.0	0.1
Gallbladder	112	8.5**	3.6	62	10.7**	5.2	50	6.7**	2.3
Other biliary	29	2.2**	0.6	8	1.5**	0.4	21	2.8**	0.8
Pancreas	17	1.3**	0.5	7	1.3**	0.6	10	1.4**	0.4
Other digestive system	69	5.3*	8.4	33	5.8*	9.7	36	4.8*	7.3
	6	0.4	0.4	4	0.6	0.3	2	0.2	0.4
Respiratory System									
Nose, Nasal cavity & middle ear	162	12.6*	50.0	107	18.7*	70.7	55	7.7*	34.6
Larynx	5	0.4**	0.1	1	0.2	0.2	4	0.6**	0.1
Lung	6	0.5*	1.3	5	0.9*	2.3	1	0.1	0.5
Trachea & other respiratory system	149	11.5*	48.3	100	17.4*	67.7	49	6.9*	33.9
	2	0.2	0.3	1	0.2	0.4	1	0.1	0.2

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 22 con't.
Southwest

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	Both Sexes		Males		Females	
	Southwest N	Southwest Rate	Southwest N	Southwest Rate	Southwest N	Southwest Rate
Bone & Joints	9	0.4	3	0.3	6	0.5
Soft Tissue (including heart)	12	0.8	7	1.0	5	0.6
Malignant Melanoma	9	0.6*	4	0.7*	5	0.5*
Breast	76	5.0*	1	0.2	75	8.9*
Female Genital System	106	7.2	0	0.0	106	12.9
Cervix uteri	34	2.1**	0	0.0	34	3.8
Corpus uterus	16	1.2	0	0.0	16	2.1
Uterus, NOS	5	0.4	0	0.0	5	0.7
Ovary	46	3.2	0	0.0	46	5.8
Vagina	1	0.1	0	0.0	1	0.1
Vulva	2	0.2	0	0.0	2	0.3
Other female genital system	2	0.1	0	0.0	2	0.2
Male Genital System	80	6.2*	80	14.3*	0	0.0
Prostate	73	5.9*	73	13.7*	0	0.0
Testis	6	0.2	6	0.5	0	0.0
Penis	1	0.1	1	0.2	0	0.0
Other male genital system	0	0.0	0	0.0	0	0.0
Urinary System	89	6.3	61	9.6	28	3.6
Urinary bladder	10	0.8*	6	1.1*	4	0.5*
Kidney & renal pelvis	79	5.5**	55	8.5**	24	3.1
Ureter	0	0.0	0	0.0	0	0.0
Other urinary system	0	0.0	0	0.0	0	0.0

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.



Table 22 con't.
Southwest

Number of Deaths and Cancer Mortality Rates
per 100,00 population, 1994 - 1998, age-adjusted to 1970 US standard

Site	<u>Both Sexes</u>		<u>Males</u>		<u>Females</u>	
	Southwest N	US ^ Rate	Southwest N	US ^ Rate	Southwest N	US ^ Rate
Eye & Orbit	2	0.1	2	0.3	0	0.0
Brain & Nervous System	23	1.3*	15	1.7*	8	1.0*
Thyroid gland	5	0.4	2	0.4	3	0.4
Other endocrine (including thymus)	2	0.1	1	0.1	1	0.1
Hodgkin's disease	3	0.2	1	0.2	2	0.2
Non-Hodgkin's	43	3.0*	29	4.6*	14	1.9*
Multiple Myeloma	50	3.7	30	5.2	20	2.6
Leukemias	55	3.0*	20	2.6*	35	3.5
Lymphocytic:	14	0.6*	6	0.7*	8	0.7
Acute lymphocytic	12	0.5	4	0.3	8	0.7
Chronic lymphocytic	2	0.2*	2	0.4*	0	0.0
Other lymphocytic	0	0.0	0	0.0	0	0.0
Myeloid:	24	1.4*	9	1.2*	15	1.6
Acute myeloid	16	0.9*	8	1.0*	8	0.8
Chronic myeloid	7	0.4	1	0.2	6	0.6
Other myeloid	1	0.1	0	0.0	1	0.1
Monocytic:	0	0.0	0	0.0	0	0.0
Acute monocytic	0	0.0	0	0.0	0	0.0
Chronic monocytic	0	0.0	0	0.0	0	0.0
Other Leukemias	17	1.0	5	0.8*	12	1.3
III-defined & Unspecified Sites	163	12.2	58	9.9*	105	14.1**
All Sites	1404	101.3*	693	115.6*	711	90.5*
		165.7		204.4		138.8

^ US All Races mortality rates, 1994-1998

** Denotes a rate significantly higher (* lower) than the US rate. Rates based on few deaths should be interpreted with caution.

